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GLOBAL DATA MONITORING REPORT

May, 1996

Data Assimilation
Meteorological Office
London Rd
Bracknell
Berkshire
RG12 2SZ

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

DR C. Heasman
Head of Observation Processing and Monitoring Section
Data Assimilation
Meteorological Office
London Road
Bracknell
Berkshire
United Kingdom
RG12 2SZ

2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 has been replaced by statistics for GOES-8 and GOES-9.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias|	≥ 4 hPa	(pressure),
	≥ 5 m s^{-1}	(wind speed),
	≥ 30 degrees	(direction).
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
CTFS	ALL	MSLP	SUR	23	0	0	1.5	-4.6	4.9
C6FA6	ALL	MSLP	SUR	35	0	0	1.7	-5.6	5.9
C6LI6	ALL	MSLP	SUR	31	1	3	1.3	9.8	9.9
DGLU	ALL	MSLP	SUR	85	0	0	1.2	-5.1	5.3
ELRE5	ALL	MSLP	SUR	46	1	2	1.9	4.7	5.1
ELSS6	ALL	MSLP	SUR	20	0	0	3.6	5.1	6.3
EUJV	ALL	MSLP	SUR	28	0	0	1.0	8.3	8.3
LAXS2	ALL	MSLP	SUR	32	0	0	1.4	6.0	6.2
NODU	ALL	MSLP	SUR	20	0	0	3.1	-4.8	5.7
OUKV	ALL	MSLP	SUR	25	0	0	1.4	-4.9	5.0
S6CL	ALL	MSLP	SUR	20	1	5	4.4	4.3	6.2
UVJA	ALL	MSLP	SUR	21	17	81	3.8	-8.3	9.1
VCGQ	ALL	MSLP	SUR	34	32	94	0.5	-9.8	9.8
VCTK	ALL	MSLP	SUR	25	23	92	0.5	-9.7	9.7
VDFP	ALL	MSLP	SUR	21	21	100	0.0	0.0	0.0
VDLC	ALL	MSLP	SUR	23	0	0	1.8	-6.9	7.1
VOPM	ALL	MSLP	SUR	35	19	54	2.7	-6.4	7.0
VRUH6	ALL	MSLP	SUR	39	0	0	1.0	4.6	4.7
VTXL	ALL	MSLP	SUR	28	0	0	2.4	4.2	4.9
V2QU	ALL	MSLP	SUR	30	1	3	2.2	-6.1	6.5
3FTJ4	ALL	MSLP	SUR	21	0	0	0.7	6.4	6.4
9VIH	ALL	MSLP	SUR	45	0	0	1.1	-4.9	5.1
WIND SPEED									
C6LC4	ALL	SPEED	SUR	21	0	0	3.0	6.6	7.2
DQQC	ALL	SPEED	SUR	69	0	0	5.5	9.5	11.0
ELRR5	ALL	SPEED	SUR	31	0	0	4.8	5.4	7.2
FNNK	ALL	SPEED	SUR	82	2	2	5.8	11.6	12.9
FNVA	ALL	SPEED	SUR	80	0	0	3.4	6.0	6.9
LAVD4	ALL	SPEED	SUR	29	0	0	2.5	5.6	6.1
OZIA	ALL	SPEED	SUR	209	11	5	7.2	9.9	12.2
P3ZL4	ALL	SPEED	SUR	43	0	0	2.9	5.8	6.5
VRUA4	ALL	SPEED	SUR	59	0	0	4.1	5.8	7.1
VTXL	ALL	SPEED	SUR	28	0	0	4.2	5.1	6.6
3EVY8	ALL	SPEED	SUR	20	1	5	5.9	6.5	8.7
46054	ALL	SPEED	SUR	116	0	0	3.1	5.1	5.9
9MTZ	ALL	SPEED	SUR	45	0	0	4.9	8.6	9.9
WIND DIRECTION									
P3XM4	ALL	DIRN.	SUR	33	0	0	81.7	-4.2	81.8
ZCAO7	ALL	DIRN.	SUR	32	0	0	44.7	33.1	55.6
3FDZ5	ALL	DIRN.	SUR	32	0	0	43.4	34.8	55.7
4QVU	ALL	DIRN.	SUR	21	0	0	82.6	20.8	85.2
43001	ALL	DIRN.	SUR	47	0	0	89.5	-47.4	101.3
43301	ALL	DIRN.	SUR	31	0	0	82.4	-3.5	82.5
45007	ALL	DIRN.	SUR	49	0	0	25.2	-31.5	40.3
46027	ALL	DIRN.	SUR	65	0	0	21.2	-30.8	37.4
46045	ALL	DIRN.	SUR	33	0	0	52.8	33.7	62.7
46053	ALL	DIRN.	SUR	74	0	0	35.9	-43.0	56.0
46060	ALL	DIRN.	SUR	39	0	0	90.4	-28.5	94.8
51007	ALL	DIRN.	SUR	65	0	0	38.3	57.9	69.4
51015	ALL	DIRN.	SUR	39	0	0	48.6	56.4	74.4
52002	ALL	DIRN.	SUR	33	0	0	21.9	-35.2	41.5
52317	ALL	DIRN.	SUR	37	0	0	87.6	8.3	88.0
62165	ALL	DIRN.	SUR	59	0	0	108.1	-35.4	113.7

AVAILABILITY – SHIP/SYNOP – MAY 1996

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 17224

FIGURE 1

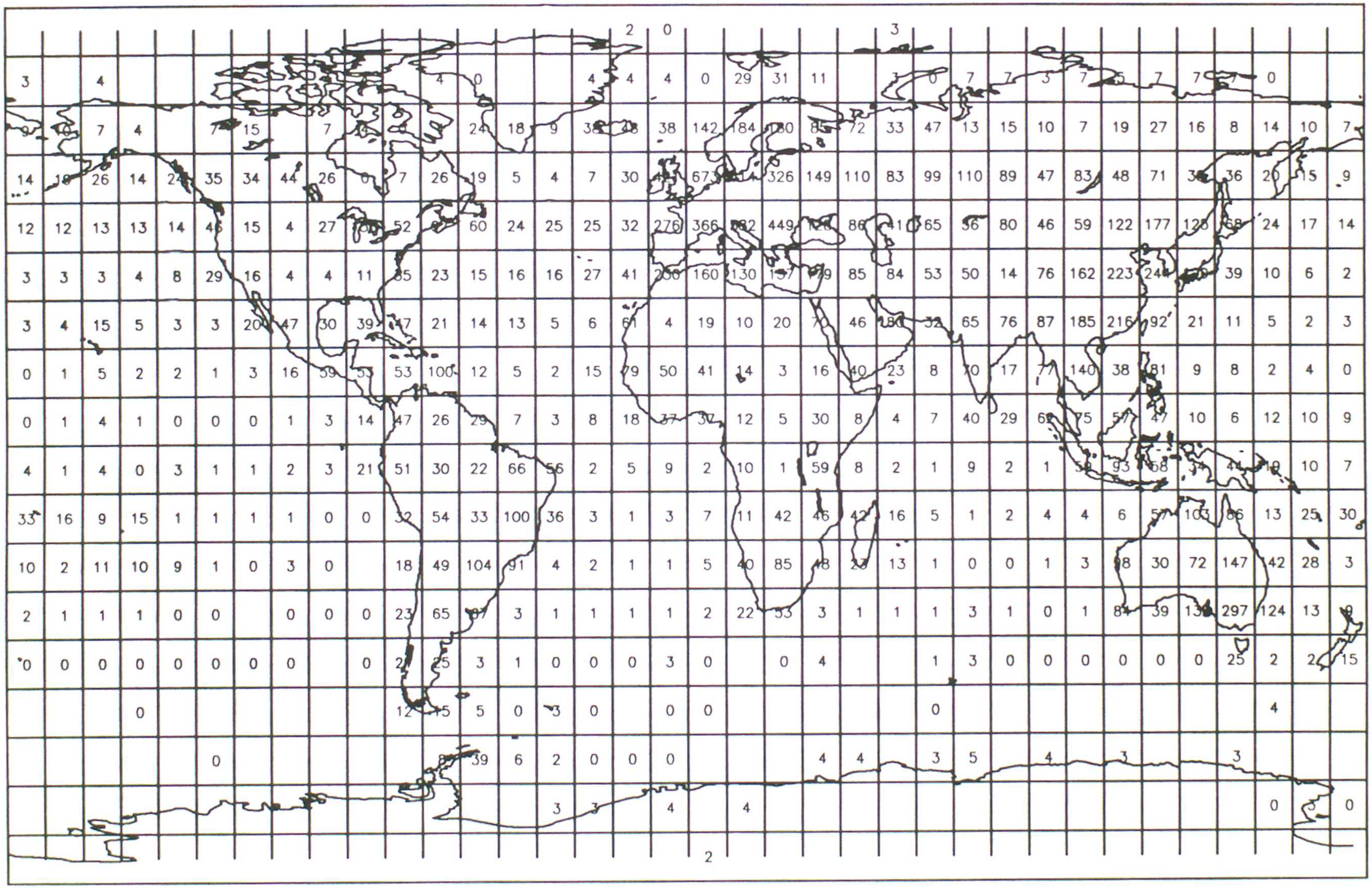


TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).
3.PGE ≥ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
16939	-42.5	-27.3	ALL	MSLP	SUR	223	90	40	4.6	6.6	8.1
17604	-27.5	-174.2	ALL	MSLP	SUR	215	215	100	0.0	0.0	0.0
23924	20.6	90.3	ALL	MSLP	SUR	72	72	100	0.0	0.0	0.0
33535	-37.1	56.0	ALL	MSLP	SUR	463	164	35	5.8	-6.0	8.4
33546	-33.3	-34.7	ALL	MSLP	SUR	198	3	2	4.9	6.5	8.1
33948	-54.5	37.9	ALL	MSLP	SUR	289	173	60	6.1	-5.0	7.9
34909	-41.3	-77.7	ALL	MSLP	SUR	139	10	7	4.1	8.5	9.5
54913	-35.3	-146.3	ALL	MSLP	SUR	236	72	31	2.6	0.4	2.6
54926	-45.4	-161.6	ALL	MSLP	SUR	198	67	34	6.6	-3.2	7.3
55906	-45.6	138.9	ALL	MSLP	SUR	245	22	9	6.2	2.5	6.6
71542	44.7	-63.6	ALL	MSLP	SUR	46	38	83	9.3	-4.2	10.2
71591	-69.5	-40.9	ALL	MSLP	SUR	660	12	2	2.7	6.9	7.5
74537	-62.1	81.6	ALL	MSLP	SUR	352	108	31	5.4	-3.5	6.4
WIND DIRECTION											
46557	37.8	-141.8	ALL	DIRN.	SUR	149	0	0	35.0	-31.2	46.9
55588	-43.9	156.8	ALL	DIRN.	SUR	48	0	0	45.3	-108.5	117.6

AVAILABILITY – DRIBU – MAY 1996

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 4951

FIGURE 2

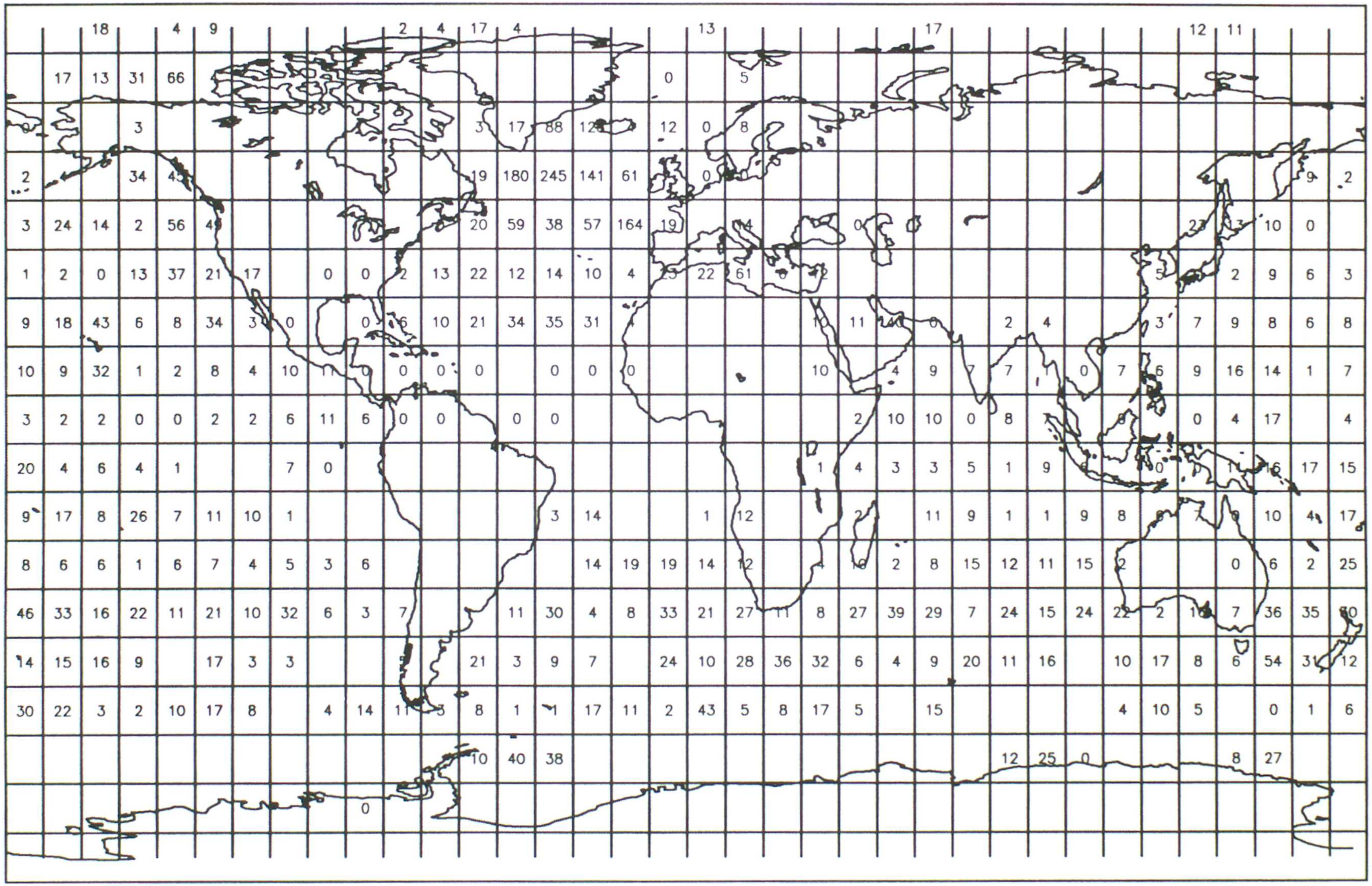

18 4 9 2 4 17 4 13 17 12 11
17 13 31 66 0 5
3 3 17 88 12 12 0 8
2 34 4 19 180 245 141 61 0 9 2
3 24 14 2 56 4 20 59 38 57 164 19 14 0 23 3 10 0
1 2 0 13 37 21 17 0 0 2 13 22 12 14 10 4 25 22 61 6 42 5 2 9 6 3
9 18 43 6 8 34 3 0 0 6 10 21 34 35 31 4 10 11 14 0 2 4 3 7 9 8 6 8
10 9 32 1 2 8 4 10 11 0 0 0 0 0 0 0 10 4 9 7 7 1 0 7 6 9 16 14 1 7
3 2 2 0 0 2 2 6 11 6 0 0 0 0 2 10 10 0 8 7 8 0 4 17 4
20 4 6 4 1 7 0 1 4 3 3 5 1 9 6 0 0 11 16 17 15
9 17 8 26 7 11 10 1 3 14 1 12 2 11 9 1 1 9 8 6 7 9 10 4 17
8 6 6 1 6 7 4 5 3 6 14 19 19 14 12 4 10 2 8 15 12 11 15 2 0 6 2 25
46 33 16 22 11 21 10 32 6 3 7 11 30 4 8 33 21 27 11 8 27 39 29 7 24 15 24 22 2 16 7 36 35 30
14 15 16 9 17 3 3 5 21 3 9 7 24 10 28 36 32 6 4 9 20 11 16 10 17 8 6 54 31 12
30 22 3 2 10 17 8 4 14 11 3 8 1 1 17 11 2 43 5 8 17 5 15 4 10 5 0 1 6
10 40 38 12 25 0 8 27
0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.¦bias¦	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	107	1	1	81	1.1	4.8	4.9
60468	35.6N	6.2E	1052	S8	105	105	100	0	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	102	102	100	0	0.0	0.0	0.0
60535	34.7N	3.3E	1144	S8	78	0	0	91	1.1	-6.2	6.3
60571	31.6N	2.2W	773	S8	104	1	1	24	0.9	-4.6	4.7
60670	24.6N	9.5E	1054	S8	102	2	2	96	1.5	7.9	8.0
61731	13.3N	14.2W	4	M	21	1	5	48	0.5	-5.0	5.0
62435	25.4N	30.5E	73	M	114	0	0	32	1.9	-4.1	4.5
63333	11.1N	39.7E	1916	MS	44	0	0	93	1.3	7.4	7.5
63453	8.8N	39.8E	1062	S	34	2	6	100	1.2	12.4	12.5
67877	18.2S	31.5E	1632	S8	55	1	2	100	1.5	7.5	7.6
68014	19.6S	18.1E	1411	S8	75	0	0	97	1.3	-7.0	7.1
68018	17.9S	19.8E	1083	S8	83	0	0	2	1.0	-4.6	4.7
68442	29.1S	26.3E	1354	S8	99	0	0	100	1.0	-5.9	6.0
68752	32.8S	27.4E	524	S8	66	0	0	100	0.9	-7.8	7.9

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	52	0	0	100	1.5	10.4	10.5
31915	44.4N	131.4E	211	MS	109	0	0	98	1.6	-5.1	5.3
40701	39.3N	44.4E	1470	MS	98	1	1	95	1.1	7.1	7.2
40743	36.2N	57.7E	941	MS	114	0	0	29	1.2	-5.6	5.7
40762	35.3N	59.2E	1333	MS	113	23	20	0	0.8	-13.6	13.6
40763	35.2N	58.5E	1060	MS	50	0	0	26	1.4	-6.4	6.6
40783	32.4N	49.7E	1972	MS	97	0	0	63	1.3	-5.2	5.4
40789	33.8N	55.1E	921	MS	73	0	0	100	1.6	7.9	8.1
40836	30.8N	51.7E	1880	MS	89	1	1	97	1.1	8.6	8.7
40859	29.0N	53.7E	1383	MS	86	2	2	100	1.4	8.7	8.8
41254	23.1N	57.7E	1755	S8	81	81	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	26	0	0	73	1.3	6.5	6.6
44277	46.4N	96.3E	2147	MS	71	0	0	25	2.1	-4.0	4.5
44292	47.9N	107.0E	1338	MS	76	0	0	22	1.3	4.2	4.4
44477	27.0N	87.4E	1445	S8	71	69	97	0	2.4	-9.0	9.3
47022	40.8N	128.2E	1206	S	99	1	1	61	1.2	4.4	4.6
52602	38.8N	93.4E	2734	S	116	0	0	18	1.8	-5.0	5.3
56287	30.0N	103.0E	629	M	115	0	0	3	1.7	4.0	4.3
56444	28.5N	98.9E	3488	S	115	115	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	99	1	1	94	2.2	7.4	7.7
57816	26.5N	106.7E	1222	MS	116	111	96	100	4.1	11.2	11.9

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	35	0	0	0	1.3	-5.4	5.6
80431	9.9N	67.3W	429	MS	34	0	0	18	1.2	-4.2	4.4
82704	7.6S	72.7W	170	MS	66	0	0	0	2.2	-4.5	5.0
83214	10.3S	54.9W	285	MS	44	0	0	0	1.3	-5.9	6.0
83235	12.4S	46.4W	660	MS	63	0	0	94	1.0	6.6	6.7
83319	14.7S	52.4W	315	MS	46	1	2	4	1.2	-4.4	4.6
83332	14.1S	46.4W	950	MS	63	12	19	0	0.9	13.6	13.6
83408	14.3S	43.8W	556	MS	63	0	0	100	1.3	11.2	11.3
83423	16.7S	49.3W	729	MS	64	0	0	83	1.4	-5.0	5.2
83488	17.8S	42.9W	1097	MS	63	63	100	0	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	35	0	0	94	2.1	-6.7	7.0
83531	18.6S	46.5W	896	MS	49	1	2	59	0.9	-6.7	6.8
83587	19.9S	43.9W	850	MS	75	3	4	92	1.3	-8.1	8.2
83689	21.3S	43.8W	1171	MS	52	1	2	88	1.1	5.0	5.1
83704	22.3S	53.9W	369	MS	56	1	2	54	1.4	-10.2	10.3

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83836	25.5S	50.6W	837	MS	70	0	0	47	1.2	-4.2	4.4
83916	28.2S	51.5W	806	MS	55	0	0	73	1.0	-4.5	4.6
84401	5.2S	80.6W	55	MS	114	0	0	4	1.4	4.7	4.9
84455	6.5S	76.4W	282	MS	114	1	1	1	1.5	6.8	7.0
84472	7.1S	78.5W	2622	S	40	1	3	93	1.9	-5.1	5.4
84501	8.1S	79.0W	30	MS	114	0	0	0	1.8	4.8	5.1
84542	9.4S	77.6W	2760	S	46	0	0	0	1.9	5.0	5.3
84686	13.6S	72.0W	3249	S	112	0	0	10	1.6	-5.6	5.8
84782	18.1S	70.3W	469	MS	116	0	0	5	1.8	7.9	8.1
85264	18.5S	64.1W	1998	S	45	0	0	36	4.5	-4.1	6.1
85312	19.8S	63.9W	992	S	35	1	3	71	1.3	-6.0	6.1
85406	18.3S	70.3W	58	M	115	0	0	5	1.5	6.3	6.5

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71896	53.9N	122.8W	601	MS	115	0	0	100	0.9	-11.5	11.5
76118	30.4N	109.7W	1040	MS	42	0	0	100	1.0	-8.7	8.8
76539	22.1N	101.0W	1871	MS	85	0	0	59	1.0	-4.4	4.5
76632	20.1N	98.7W	2417	MS	57	0	0	54	0.8	-6.0	6.1
76634	20.1N	98.4W	2135	MS	89	1	1	55	1.4	-5.4	5.6
76658	19.2N	103.7W	494	MS	21	0	0	0	1.2	5.8	5.9
76698	19.6N	88.0W	20	MS	45	0	0	82	1.8	-5.5	5.8
76726	18.9N	99.3W	1560	MS	67	2	3	99	1.2	-8.1	8.2
76750	18.5N	88.3W	3	MS	87	0	0	1	1.5	-4.0	4.3
76762	17.5N	99.5W	1360	MS	69	2	3	99	1.2	11.5	11.6
76848	16.3N	92.1W	1530	MS	89	8	9	49	0.9	-13.3	13.3

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	MS	51	0	0	20	1.3	-4.4	4.6

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	81	1	1	100	0.9	-5.5	5.6
02045	67.8N	20.4E	408	M	83	83	100	0	0.0	0.0	0.0
08221	40.5N	3.6W	633	MS	114	1	1	93	1.2	5.6	5.7
11024	48.4N	15.4E	860	S8	113	5	4	0	0.8	-13.1	13.1
11346	47.3N	12.8E	917	S8	84	0	0	14	1.5	-4.5	4.7
16020	46.5N	11.3E	1461	MS	83	83	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	116	107	92	0	0.7	-13.9	13.9
16549	39.1N	8.3E	12	MS	53	0	0	89	0.9	-5.0	5.1
16614	40.4N	21.3E	604	MS	107	0	0	100	1.1	-7.3	7.4

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89108	89.0S	0.3W	2754	S7	108	0	0	0	3.6	4.1	5.5
89208	90.0S	0.0W	2835	S7	79	43	54	0	3.8	3.1	4.9
89266	72.2S	60.3W	91	MS	66	17	26	0	4.6	-4.3	6.3
89314	84.6S	115.8W	1463	S	23	5	22	39	3.9	-7.1	8.1
89332	82.6S	137.1W	549	S	70	7	10	29	7.7	0.7	7.7
89664	77.9S	166.7E	24	MS	84	5	6	8	3.0	-5.4	6.2
89705	81.5S	3.7E	2410	S7	49	49	100	0	0.0	0.0	0.0
89744	74.0S	43.0E	3353	S	73	0	0	10	2.8	4.4	5.2
89757	73.8S	55.7E	2775	S	28	28	100	0	0.0	0.0	0.0

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89803	68.5S	102.2E	2118	S7	80	17	21	65	2.5	-10.1	10.4
89847	67.6S	146.0E	30	MS	40	6	15	5	3.0	-6.9	7.5
89860	74.2S	160.3E	1772	S8	101	7	7	22	2.4	-8.4	8.7
89863	74.9S	163.1E	30	MS	86	5	6	10	4.4	-5.9	7.4
89865	76.2S	168.7E	275	MS	47	33	70	0	8.5	-2.1	8.8
89868	79.9S	169.8E	60	MS	36	36	100	0	0.0	0.0	0.0
89872	78.0S	170.8E	45	MS	38	0	0	0	3.3	-4.7	5.7
89873	83.2S	174.5E	60	MS	39	2	5	13	3.3	-7.6	8.3

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	162	2	5	2.2	0.9	163	0	2	0	7.3	0.7
AAL	5350	0	1	1.6	0.2	5366	0	1	0	7.4	0.8
AAN	125	2	3	1.4	-0.1	120	0	5	0	9.0	0.5
AAR	1888	1	1	1.7	0.0	1904	0	2	0	8.3	0.8
ACA	1244	0	1	1.8	0.2	1290	0	2	0	6.8	0.5
ACI	28	7	7	2.5	0.4	26	0	0	0	8.8	2.8
AEA	517	0	100	2.2	0.9	502	0	4	0	8.4	1.6
AEL	604	0	3	1.6	-0.2	612	0	4	0	7.9	0.4
AFL	245	0	100	3.3	1.8	240	0	11	1	10.3	0.4
AFR	1360	1	3	1.7	-0.2	1395	0	5	0	8.1	0.7
AIC	34	3	3	2.8	1.4	34	0	0	0	8.3	0.7
AIH	183	2	3	1.4	0.1	181	0	2	0	7.5	1.3
AJM	20	0	0	1.2	0.0	23	0	4	0	8.6	1.7
AMT	326	0	1	1.5	0.7	332	0	1	0	6.5	-0.1
AMX	205	0	3	2.0	0.1	212	0	3	0	8.7	1.3
AMY	59	0	0	1.5	-0.8	59	2	2	0	7.6	1.2
ANA	829	0	0	1.8	-0.3	827	0	2	1	7.9	0.9
ANZ	2445	2	3	1.9	-0.1	2429	0	3	0	8.5	1.1
AOM	523	1	2	1.9	1.0	531	1	3	0	8.1	0.8
ASY	24	4	4	1.3	0.4	24	0	4	0	9.9	2.2
ATN	27	0	7	2.3	-0.9	27	0	100	0	11.7	3.2
AUA	97	0	0	1.8	-0.7	97	0	0	0	7.0	1.4
AVA	381	1	2	1.9	0.1	386	0	2	0	8.3	0.9
AVN	40	0	0	1.6	0.9	40	0	3	0	9.9	0.3
AZA	488	1	3	2.2	0.3	495	0	3	0	7.3	1.1
BAL	602	1	14	1.6	0.0	614	0	15	0	7.5	0.6
BAW	1818	0	2	1.8	0.1	1842	0	3	0	7.4	0.8
BBB	56	0	0	1.2	-0.3	55	0	2	0	8.2	2.2
BWA	352	1	3	2.4	0.9	356	0	3	0	8.6	1.3
CAL	1692	0	1	1.7	0.0	1698	0	1	0	7.8	0.6
CCA	160	2	92	2.6	0.8	178	1	92	0	11.0	-0.2
CDN	2459	0	1	1.8	0.5	2471	0	2	1	8.0	0.9
CES	174	0	1	1.6	0.3	177	3	92	0	9.2	0.7
CFC	20	5	20	2.8	1.4	22	0	14	0	11.1	0.6
CFG	956	0	1	1.7	-0.9	963	0	1	0	7.3	0.1
CKS	120	1	99	2.7	1.6	122	0	6	2	8.6	0.8
CKT	141	0	2	1.5	0.5	139	0	4	1	7.3	0.0
CLI	119	0	1	1.6	-0.4	123	0	2	0	7.9	1.1
CLX	135	0	1	1.8	-0.1	136	0	3	0	7.3	0.6
CMI	889	2	5	2.4	-0.3	908	0	3	0	8.2	1.4
CMM	299	1	1	1.4	0.0	304	0	3	2	7.9	0.9
COA	831	1	1	1.7	0.5	840	0	2	0	7.5	0.7
CPA	51	0	2	1.6	0.1	55	0	0	0	8.0	2.8
CRL	390	0	1	1.4	0.3	395	0	2	0	7.4	0.4
CSA	24	4	0	1.3	-0.1	27	0	0	0	5.0	-0.5
CTM	60	0	13	1.8	0.2	58	0	19	0	8.7	0.2
CUB	312	1	100	2.4	1.6	318	1	100	0	12.4	0.6
DAF	22	0	5	3.2	1.2	21	0	0	0	5.8	2.8
DAL	5422	0	2	1.9	0.7	5008	0	2	0	7.5	0.5
DHL	426	1	100	3.7	-1.6	433	0	4	0	8.5	1.1
DLH	2939	0	6	2.2	0.8	2954	0	9	3	6.8	0.7
DOA	170	1	12	1.7	0.5	163	0	15	0	10.1	0.9
EIA	65	3	11	1.9	-0.2	67	0	10	1	8.4	-0.2
ELY	129	1	7	2.0	-0.3	137	0	9	0	8.3	0.8
EVA	1654	0	1	1.8	-0.4	1717	0	2	0	8.8	0.5
EWW	151	1	66	3.3	-0.1	149	1	100	0	16.7	2.6
EXC	27	0	4	2.0	0.9	26	0	12	0	12.6	-1.0
FDX	1440	0	1	1.7	0.6	1453	0	2	0	7.5	0.7
FIN	346	0	2	2.0	0.5	347	0	2	1	7.1	1.1

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FJI	402	3	4	1.8	0.8	398	1	3	0	9.0	1.4
FNY	21	0	5	1.6	0.6	21	0	5	0	10.7	3.6
GAF	178	0	1	1.8	0.6	178	0	2	1	7.3	1.1
GFA	28	0	4	2.1	0.2	29	0	0	0	5.8	-0.3
GHA	30	7	7	1.5	0.6	29	0	3	0	8.0	1.1
GIA	199	3	3	1.6	0.4	205	0	3	2	8.5	1.3
GTI	131	0	2	2.1	-0.2	133	0	2	0	7.5	1.4
HAL	1462	0	1	1.4	0.6	1467	0	1	0	7.7	0.4
HLA	28	0	7	1.6	0.1	28	0	11	0	10.2	0.1
HLF	207	1	2	1.5	-0.7	205	0	2	0	9.0	1.2
HRH	40	10	15	1.5	0.6	37	0	5	0	15.3	-1.9
IBE	1670	1	13	2.0	0.2	1665	0	14	0	9.0	0.3
ICE	566	1	1	1.6	-0.3	559	0	2	1	6.5	0.7
JAL	6150	0	1	1.8	0.2	6188	0	2	0	8.0	0.7
JAS	21	0	5	2.3	0.0	21	0	0	0	5.7	-1.7
JAZ	70	0	0	1.6	1.0	70	0	0	0	7.8	0.3
KAL	3479	1	2	1.9	0.0	3474	0	2	0	8.6	0.8
KIC	33	0	0	1.3	0.1	33	0	0	0	9.8	0.0
KLM	2341	0	2	1.9	0.5	2355	0	3	1	7.5	0.5
LDA	222	1	6	1.9	-0.9	225	0	7	0	8.3	0.3
LDI	181	0	14	2.0	-1.2	185	0	17	0	8.7	0.2
LIB	447	2	3	1.7	0.6	446	0	4	0	8.2	0.0
LOT	285	1	2	2.1	-0.7	283	0	3	0	8.2	0.2
LTU	792	1	3	1.6	0.1	770	0	4	0	7.9	0.4
MAS	290	1	1	1.6	-0.4	327	0	2	0	8.9	0.8
MDA	145	1	1	1.6	0.0	144	0	2	1	8.1	-0.3
MPH	783	0	1	1.9	-0.6	784	0	2	0	7.4	0.7
NCA	639	0	1	1.7	0.4	633	0	2	1	7.9	0.4
NWA	9564	0	1	2.0	0.7	9600	0	2	1	7.9	0.6
OAL	37	3	3	2.9	2.2	38	0	3	0	10.6	1.6
PAC	66	3	3	1.5	0.2	69	0	1	0	6.6	1.2
PAL	1013	1	1	1.6	-0.5	1018	0	3	0	9.2	0.8
PAO	167	4	4	1.8	-0.1	164	1	2	0	9.1	0.3
PNL	64	0	0	1.7	0.7	64	0	2	0	10.0	0.8
QFA	1012	1	1	1.6	0.2	1022	0	1	0	7.4	1.5
RAF	179	0	1	1.7	0.3	178	0	2	1	9.5	1.1
RCH	273	2	14	2.9	1.2	271	0	15	0	10.3	1.5
RIA	201	1	53	1.8	0.8	207	0	100	0	9.6	0.9
RJA	98	1	4	2.2	0.7	98	0	2	0	7.4	1.2
RKA	68	1	9	1.3	-0.4	66	0	12	0	10.3	1.6
RON	27	0	0	1.7	0.9	27	0	0	0	5.8	1.5
RRR	220	2	23	2.5	-0.3	221	0	25	0	10.7	1.7
SAA	209	2	2	1.6	-0.4	208	0	1	0	9.2	0.2
SAB	120	0	0	1.7	0.1	120	0	2	0	6.8	0.9
SAS	1100	0	0	1.7	0.0	1092	0	2	1	7.2	0.3
SCX	29	17	10	1.5	0.2	29	0	0	0	8.1	2.5
SIA	1161	0	2	1.7	-0.4	1187	0	3	0	8.9	0.7
SLR	104	0	21	2.0	-0.5	107	0	21	0	8.4	1.1
SOL	46	0	0	2.0	0.3	48	0	2	2	6.6	2.1
SPP	131	1	11	1.4	0.0	120	0	13	0	6.5	0.3
SVA	123	0	2	1.9	0.8	128	0	3	1	9.7	1.1
SVV	25	0	4	3.4	1.7	25	0	4	0	12.2	3.0
SWR	210	0	2	2.1	0.7	213	0	3	0	7.9	1.3
TAI	59	10	10	1.4	0.8	58	2	3	0	9.7	-0.2
TAP	570	1	3	1.8	-0.4	567	0	3	0	8.5	0.7
TEJ	72	0	18	1.7	0.1	77	0	23	0	11.5	-1.0
THA	231	0	0	1.7	-0.4	233	0	1	0	8.7	1.9
TOW	117	0	4	1.8	-0.3	123	0	4	0	7.5	-0.7
TSC	107	0	6	2.3	0.3	109	0	5	0	6.1	1.0

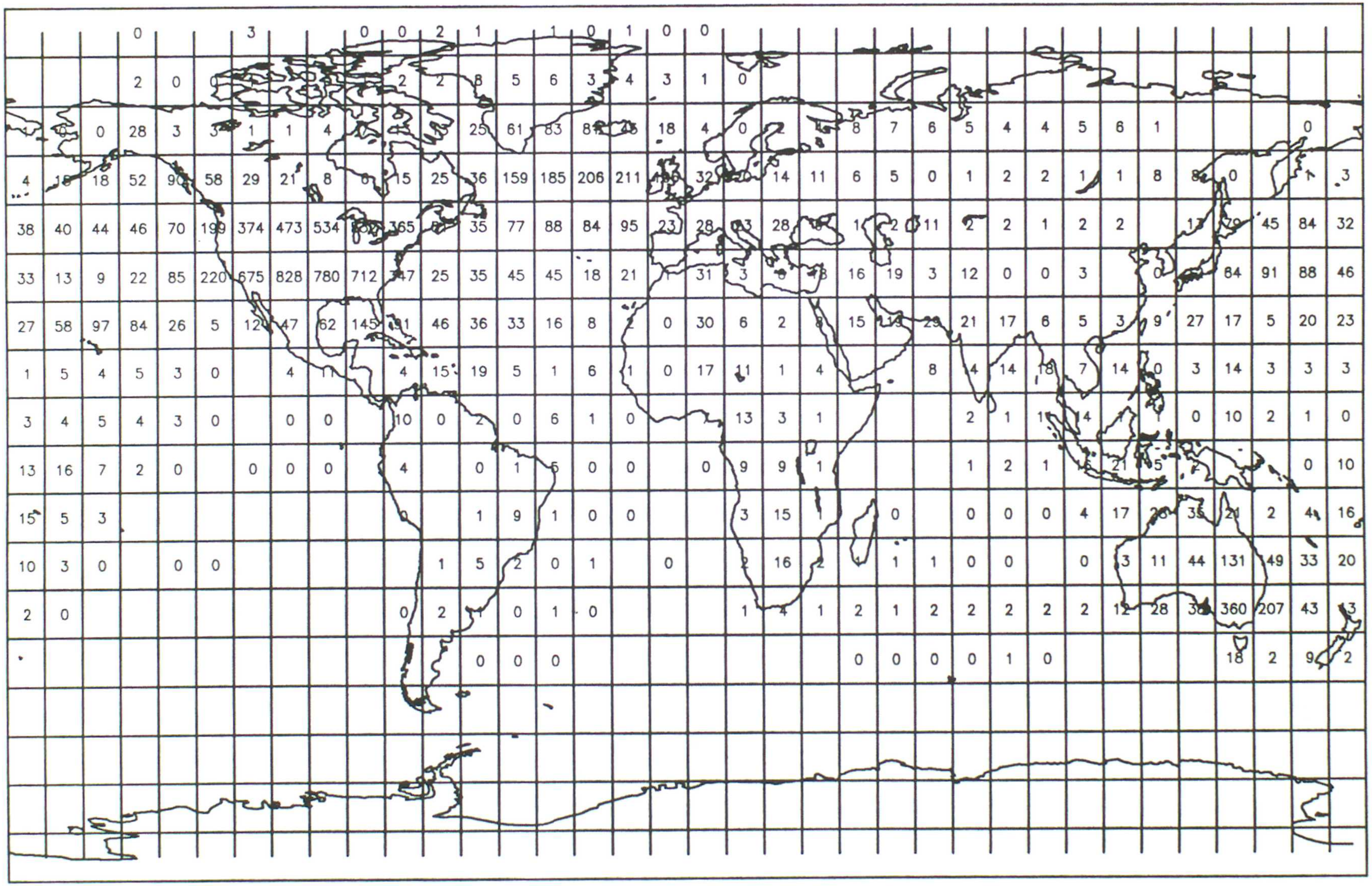
		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TWA	1518	1	2	1.8	0.1	1522	0	3	0	7.8	0.9
UAL	58595	1	3	1.4	0.2	58671	0	2	0	7.1	0.6
ULE	205	0	1	1.7	0.5	205	0	3	0	8.3	0.4
UPS	985	1	11	1.5	-0.1	992	0	12	1	7.7	0.5
USA	91	0	0	1.8	-0.4	93	0	0	0	7.1	0.5
VIA	441	1	3	2.1	0.4	447	0	4	1	7.6	0.0
VIR	234	0	2	1.9	0.2	237	0	5	0	8.9	1.5
VRG	98	3	2	1.6	0.3	104	0	2	0	10.1	0.8
VSP	51	2	4	2.0	0.4	51	0	0	0	6.7	0.9
WOA	65	0	6	2.2	0.8	71	0	7	1	6.9	0.2
AN	24345	0	1	1.1	0.0	24198	0	1	0	6.8	1.2
BA	25863	0	9	1.2	0.4	25799	0	9	0	7.0	1.2
DL	97516	0	3	1.2	0.0	97515	0	5	0	6.9	1.0
FJ	44	2	2	2.0	1.3	44	0	0	0	9.1	2.5
KL	11983	0	8	1.2	0.4	11975	0	9	0	6.9	1.2
LH	3298	0	3	1.2	0.2	3275	0	3	0	6.7	1.4
MF	24	0	0	1.5	-0.9	25	0	0	0	11.6	4.0
NW	26895	0	2	1.3	0.2	26895	0	2	0	7.0	1.1
QF	10425	0	1	1.1	0.1	10414	0	1	0	7.2	0.9
SA	2197	0	1	1.5	0.8	2197	0	99	0	9.1	2.1
SV	1512	0	5	1.1	0.7	1506	0	5	0	6.4	1.3
M	186	5	96	3.0	1.0	186	1	96	0	13.0	2.4
N	491	1	3	2.6	0.5	526	0	3	0	8.3	0.8

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

FIGURE 3

MAY 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED



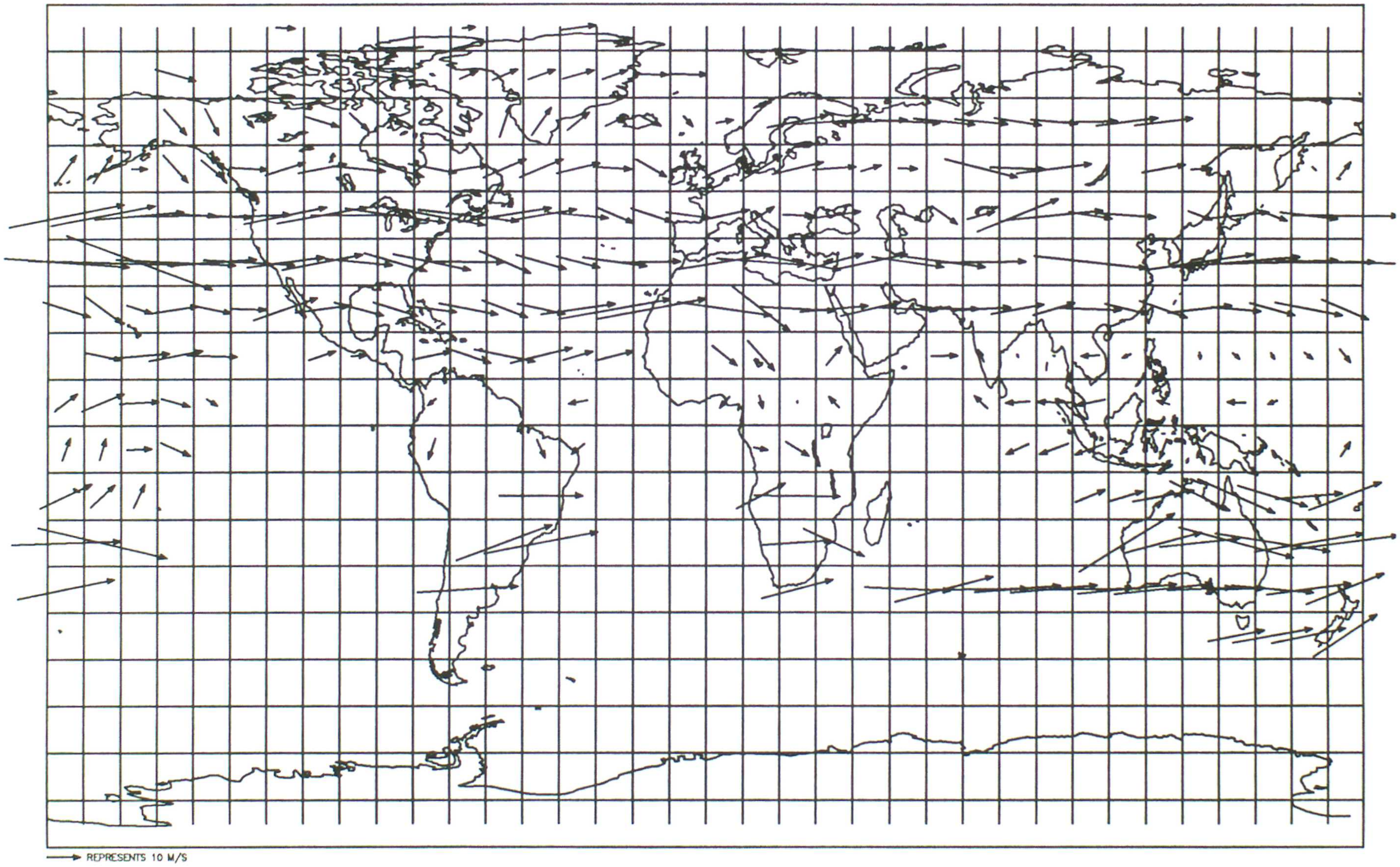
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

MAY 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4



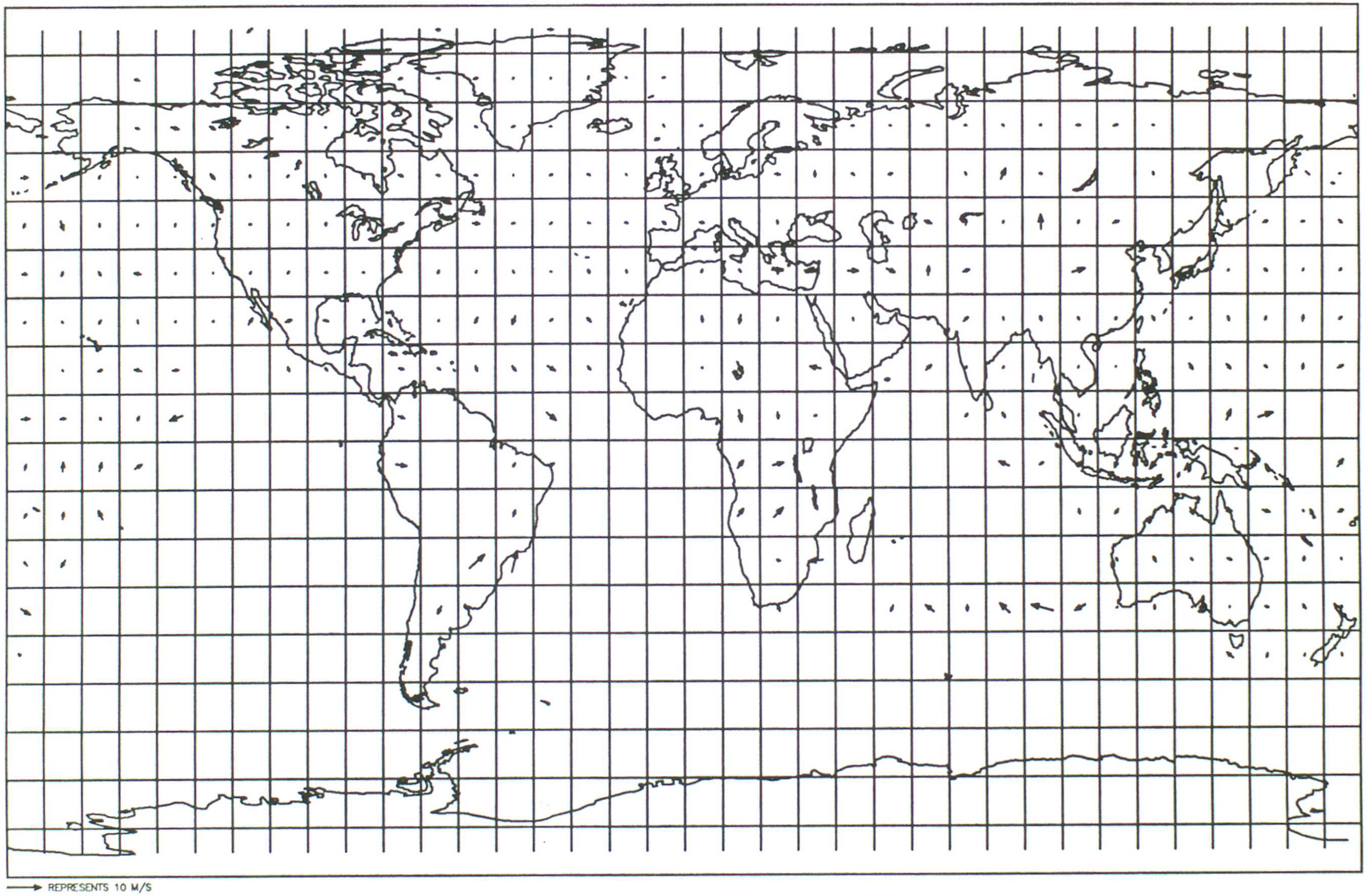
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

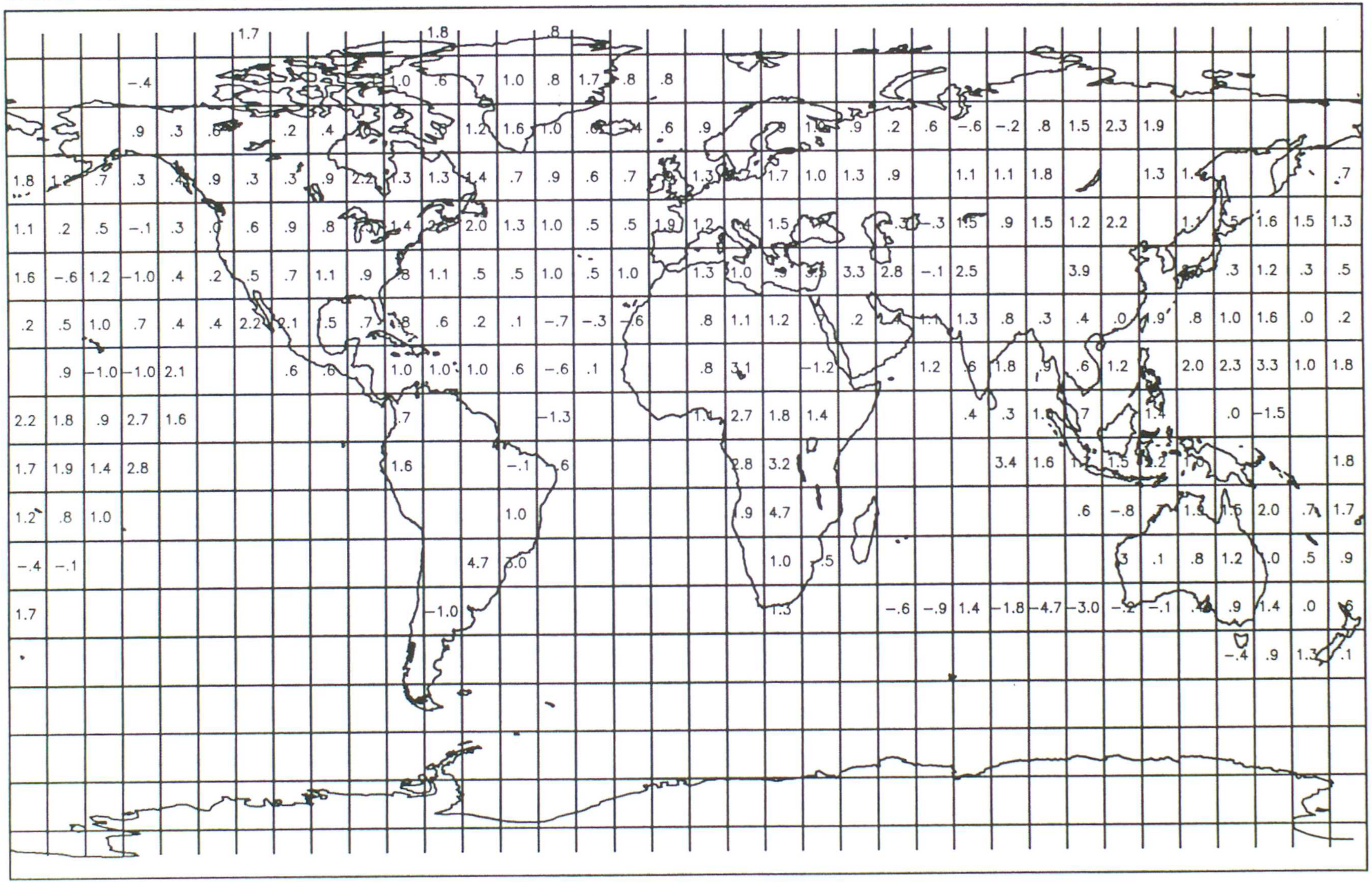
MAY 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
MAY 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


1.7 1.8 .8
–.4 1.0 .6 .7 1.0 .8 1.7 .8 .8
.9 .3 .6 .2 .4 1.2 1.6 1.0 .6 .6 .9 1.0 .9 .2 .6 –.6 –.2 .8 1.5 2.3 1.9
1.8 1.2 .7 .3 .4 .9 .3 .3 .9 2.2 1.3 1.3 1.4 .7 .9 .6 .7 1.3 1.7 1.0 1.3 .9 1.1 1.1 1.8 1.3 1.4 .7
1.1 .2 .5 –.1 .3 .6 .9 .8 1.4 2.0 1.3 1.0 .5 .5 1.9 1.2 .4 1.5 .3 –.3 1.5 .9 1.5 1.2 2.2 1.1 .5 1.6 1.5 1.3
1.6 –.6 1.2 –1.0 .4 .2 .5 .7 1.1 .9 .8 1.1 .5 .5 1.0 .5 1.0 1.3 1.0 .9 3.5 3.3 2.8 –.1 2.5 3.9 .3 1.2 .3 .5
.2 .5 1.0 .7 .4 .4 2.2 2.1 .5 .7 .8 .6 .2 .1 –.7 –.3 –.6 .8 1.1 1.2 .2 1.4 1.1 1.3 .8 .3 .4 .0 .9 .8 1.0 1.6 .0 .2
.9 –1.0 –1.0 2.1 .6 .6 1.0 1.0 1.0 .6 –.6 .1 .8 3.1 –1.2 1.2 .6 1.8 .9 .6 1.2 2.0 2.3 3.3 1.0 1.8
2.2 1.8 .9 2.7 1.6 .7 –1.3 1.1 2.7 1.8 1.4 .4 .3 1.6 .7 1.4 .0 –1.5
1.7 1.9 1.4 2.8 1.6 –.1 .6 2.8 3.2 3.4 1.6 1.2 1.5 2.2 1.0 1.8
1.2 .8 1.0 1.0 .9 4.7 .6 –.8 .7 1.9 1.5 2.0 .7 1.7
–.4 –.1 4.7 3.0 1.0 .5 .3 .1 .8 1.2 .0 .5 .9
1.7 –1.0 1.3 –.6 –.9 1.4 –1.8 –4.7 –3.0 –.2 –.1 .4 .9 1.4 .0 .6
–.4 .9 1.3 .1

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
MAY 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

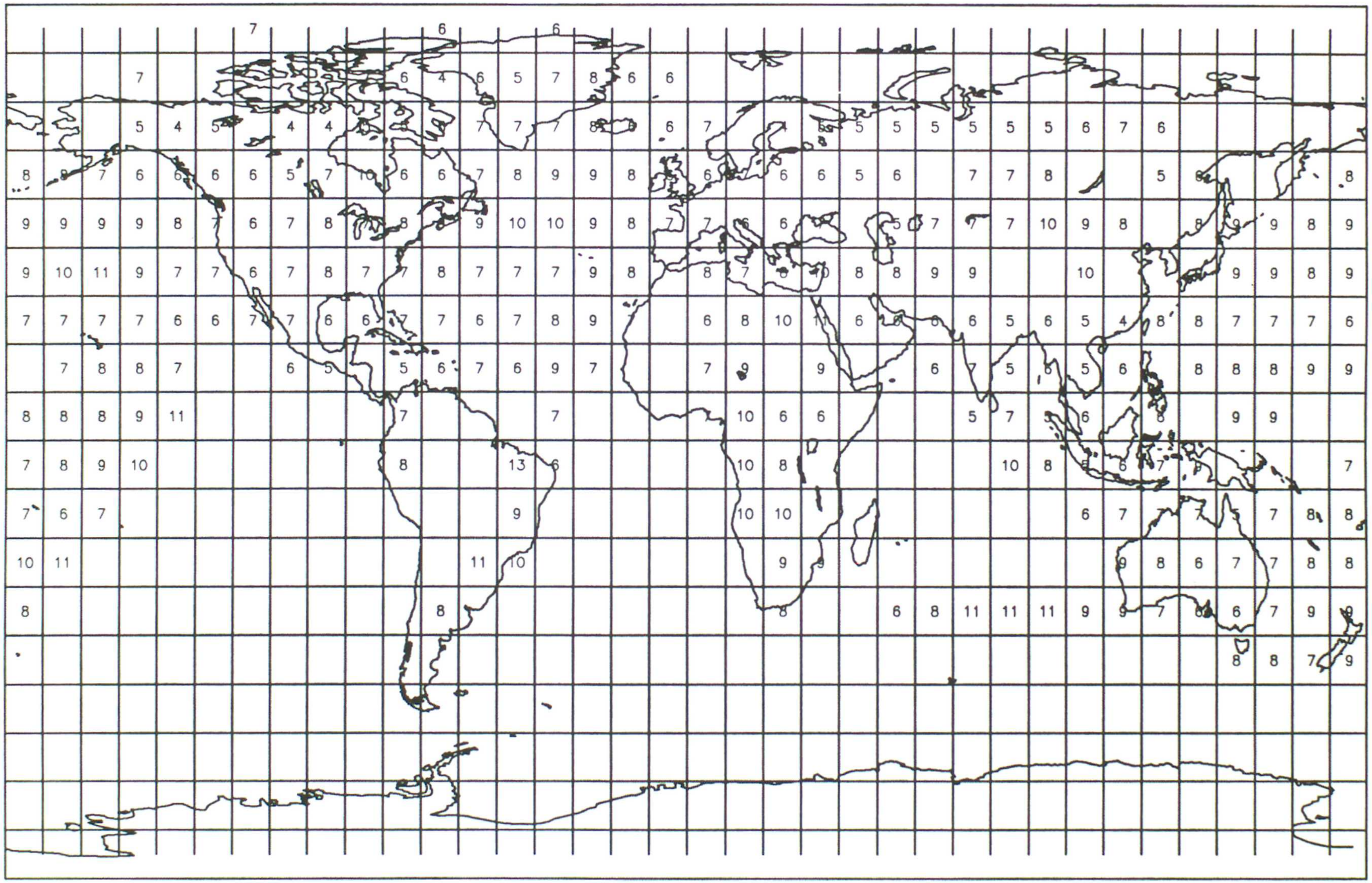

7 6 6
7 6 4 6 5 7 8 6 6
5 4 5 4 4 7 7 7 8 6 6 7 4 5 5 5 5 5 5 5 6 7 6
8 8 7 6 6 6 6 5 7 10 6 6 7 8 9 9 8 6 6 6 5 6 7 7 8 5 6 8
9 9 9 9 8 7 6 7 8 8 9 10 10 9 8 7 7 6 6 5 7 7 7 10 9 8 8 9 9 8 9
9 10 11 9 7 7 6 7 8 7 7 8 7 7 7 9 8 8 8 7 6 10 8 8 9 9 10 9 9 8 9
7 7 7 7 6 6 7 7 6 6 7 7 6 7 8 9 6 8 10 11 6 8 6 6 5 6 5 4 8 8 7 7 7 6
7 8 8 7 6 5 5 6 7 6 9 7 7 9 9 6 7 5 6 5 6 8 8 8 9 9
8 8 8 9 11 7 7 10 6 6 5 7 6 6 9 9
7 8 9 10 8 13 6 10 8 10 8 6 6 7 8 7
7 6 7 9 10 10 6 7 7 7 7 8 8
10 11 11 10 9 9 9 8 6 7 7 8 8
8 8 8 6 8 11 11 11 9 9 7 6 6 7 9 9
8 8 7 9

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown duringperiod.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
20674	12	Z	30	73/ 80	13	0	68.4	184.8	197.0	4
23933	00	Z	100	61/ 69	14	0	76.5	106.7	131.3	5
23933	12	Z	30	61/ 69	12	0	53.1	280.1	285.1	7
25563	00	Z	70	65/ 178	11	0	28.8	151.4	154.1	4
37018	12	Z	50	44/ 39	11	0	48.9	167.2	174.2	7
42339	00	Z	150	26/ 73	18	0	92.3	-60.2	110.2	4
42361	00	Z	100	26/ 78	12	1	116.9	-44.4	125.1	6
42369	00	Z	70	27/ 81	12	0	155.2	130.6	202.8	7
42369	12	Z	50	27/ 81	10	0	95.5	284.7	300.3	8
42379	00	Z	30	27/ 83	14	2	156.8	264.6	307.6	10
42379	12	Z	30	27/ 83	13	1	94.2	166.3	191.1	5
42397	00	Z	400	27/ 88	18	0	59.8	-40.4	72.2	5
42492	12	Z	100	26/ 85	21	0	102.6	36.0	108.7	4
42809	00	Z	30	23/ 88	13	0	135.3	146.9	199.8	4
42867	12	Z	100	21/ 79	21	0	117.2	32.1	121.5	5
42971	00	Z	50	20/ 86	10	0	146.5	98.8	176.7	5
43128	00	Z	100	17/ 78	14	1	127.1	-82.1	151.3	8
43150	00	Z	150	18/ 83	11	0	96.6	-54.1	110.7	6
43192	00	Z	200	15/ 74	14	0	87.5	-30.6	92.7	4
43279	00	Z	150	13/ 80	24	0	56.7	-92.2	108.2	6
43279	12	Z	150	13/ 80	25	0	82.6	-76.9	112.9	6
43295	12	Z	70	13/ 78	12	0	92.1	123.0	153.7	4
43311	00	Z	150	11/ 73	10	0	105.6	-28.1	109.2	6
43353	00	Z	100	10/ 76	16	1	79.2	-95.0	123.7	4
43369	00	Z	100	8/ 73	19	0	86.7	-143.6	167.8	7
43369	12	Z	150	8/ 73	17	0	104.3	-34.1	109.7	5
43371	00	Z	70	8/ 77	13	2	99.0	-137.8	169.7	9
44212	12	Z	150	50/ 92	14	0	70.5	85.6	110.9	4
48327	12	Z	70	19/ 99	11	0	53.3	231.6	237.7	5
48407	00	Z	30	15/ 105	19	2	109.7	194.8	223.6	6
52836	00	Z	70	36/ 98	25	0	75.9	104.2	128.9	5
52836	12	Z	100	36/ 98	24	0	41.7	109.4	117.1	4
53068	12	Z	200	44/ 112	28	0	48.4	61.4	78.2	4
53513	12	Z	70	41/ 107	27	0	42.5	113.2	120.9	4
54135	00	Z	200	44/ 122	27	1	46.3	74.7	87.9	6
54161	00	Z	70	44/ 125	28	0	93.4	123.9	155.1	8
54161	12	Z	70	44/ 125	26	1	47.4	123.1	131.9	6
54218	00	Z	200	42/ 119	27	0	27.2	74.1	78.9	5
54497	00	Z	70	40/ 124	25	0	104.8	136.5	172.1	8
54497	12	Z	30	40/ 124	16	0	73.1	188.9	202.6	7
54662	00	Z	200	39/ 122	28	0	36.8	69.5	78.6	5
54823	00	Z	200	37/ 117	29	0	29.8	83.4	88.6	8
56080	12	Z	30	35/ 103	25	0	39.1	163.1	167.7	5
56294	00	Z	100	31/ 104	24	0	35.8	110.6	116.2	4
56739	12	Z	100	25/ 98	26	0	41.9	136.7	143.0	6
56964	12	Z	30	23/ 101	14	0	85.0	209.7	226.3	5
56985	00	Z	100	23/ 103	29	0	32.6	127.2	131.3	4
56985	12	Z	100	23/ 103	25	0	27.7	142.2	144.8	5
57516	00	Z	100	30/ 106	26	0	31.2	120.9	124.8	4
57516	12	Z	100	30/ 106	16	0	43.8	142.4	149.0	4
57679	00	Z	100	28/ 113	23	0	36.3	128.6	133.6	4
58027	00	Z	70	34/ 117	23	0	53.1	109.3	121.5	4
58238	00	Z	100	32/ 119	27	0	32.5	137.2	141.0	8
58424	00	Z	100	31/ 117	29	0	37.3	122.2	127.8	5
58606	00	Z	30	29/ 116	22	0	59.1	167.2	177.4	4
58847	00	Z	100	26/ 119	17	0	48.1	144.3	152.1	4
59316	00	Z	70	23/ 117	14	0	70.1	126.0	144.2	4
60490	12	Z	400	36/ -1	1	22	0.0	-164.0	164.0	6
62306	00	Z	70	31/ 27	20	2	144.2	156.3	212.7	5
62306	12	Z	50	31/ 27	11	9	40.3	341.5	343.9	10
62378	12	Z	70	30/ 31	14	6	104.1	253.9	274.4	9

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
78988	12	Z	30	12/ -69	17	0	65.3	177.4	189.0	4
89009	00	Z	250	-90/ 0	12	0	94.1	13.5	95.1	5
89642	00	Z	500	-67/ 140	27	2	50.5	-37.1	62.6	5
96237	00	Z	200	-2/ 106	23	0	42.0	-91.4	100.6	5
97014	00	Z	100	2/ 125	21	1	120.2	-29.7	123.8	4
97014	12	Z	150	2/ 125	17	2	118.5	-65.7	135.5	8

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – MAY 1996

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1286

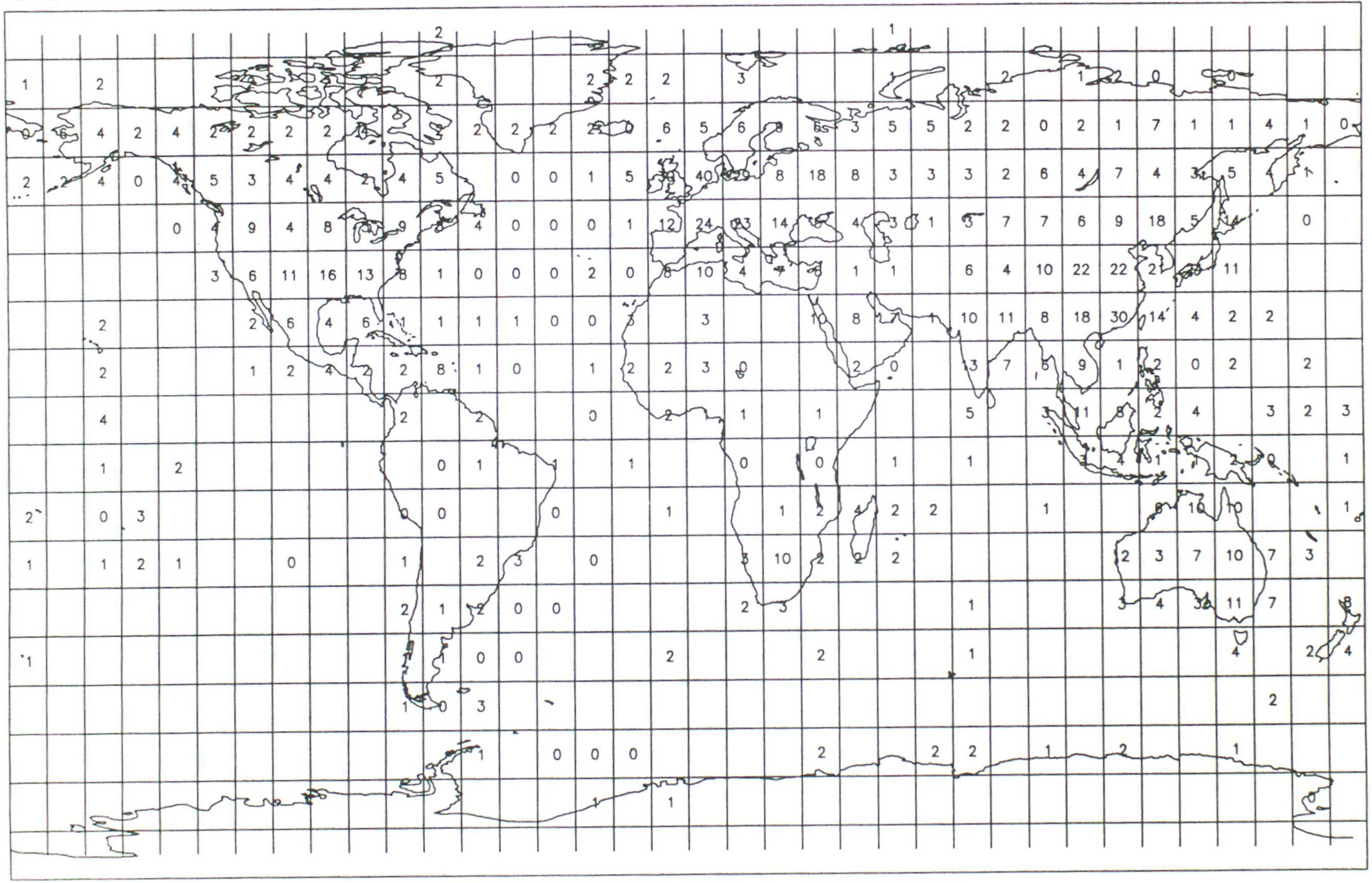


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.

GROSS ERROR LIMITS	:Defined in Appendix I.2
SELECTION CRITERIA	: ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
83612	00	V	150	-20/ -55	16	0	12	9.3	6.3	16.0	1
83612	12	V	200	-20/ -55	21	0	4	11.8	2.2	18.0	2

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – MAY 1996

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1162

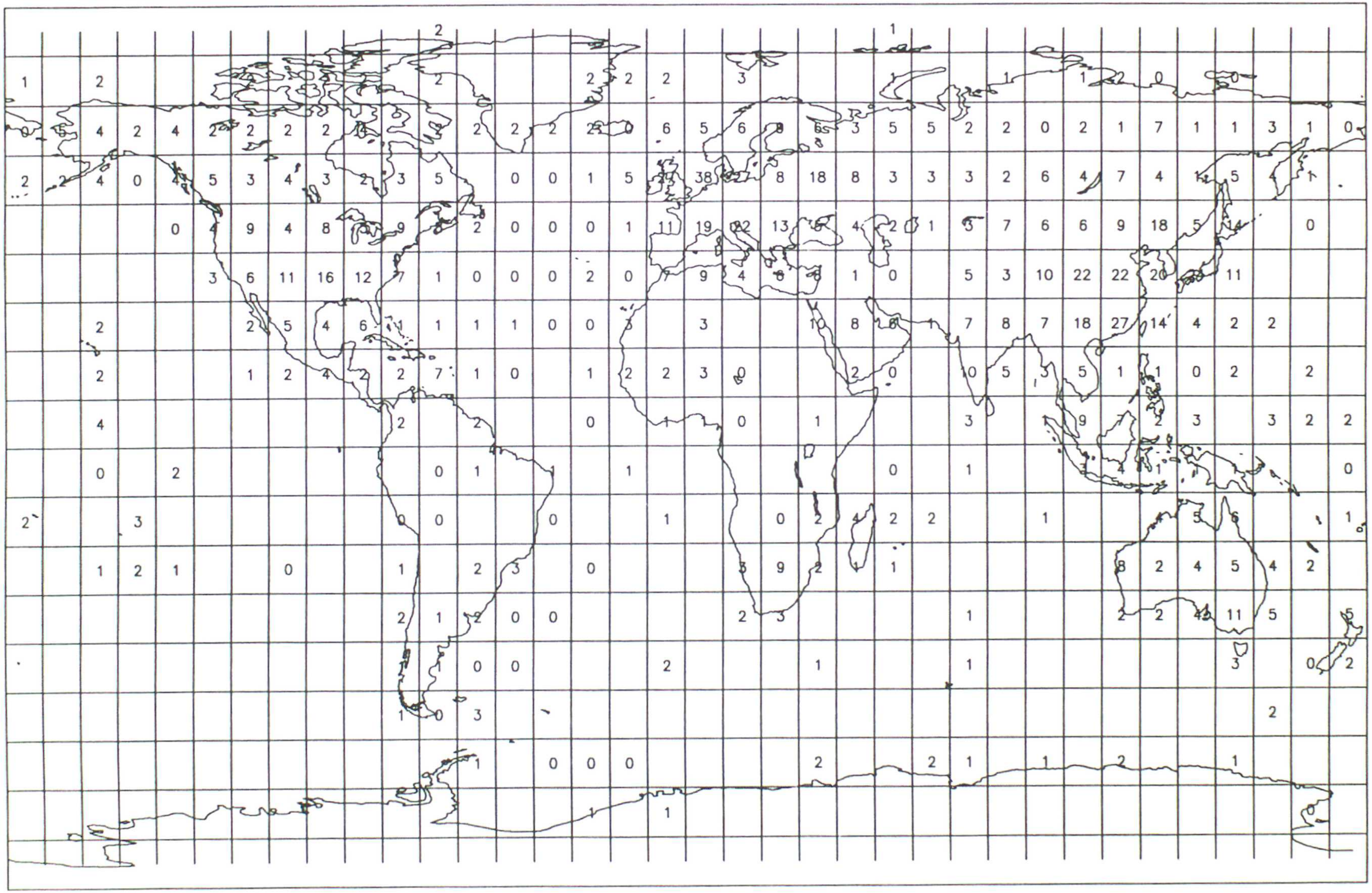

2 1
1 2 2 2 2 2 3 1 1 2 0 0
0 5 4 2 4 2 2 2 2 14 2 2 2 2 23 0 6 5 6 8 65 3 5 5 2 2 0 2 1 7 1 1 3 1 0
2 2 4 0 4 5 3 4 3 2 3 5 0 0 1 5 37 38 27 8 18 8 3 3 3 2 6 4 7 4 12 5 4 1
0 4 9 4 8 9 9 2 0 0 0 1 11 19 22 13 5 4 2 1 3 7 6 6 9 18 5 14 0
3 6 11 16 12 7 1 0 0 0 2 0 7 9 4 6 8 1 0 5 3 10 22 22 20 11
2 2 5 4 6 11 1 1 1 0 0 3 3 10 8 8 1 7 8 7 18 27 14 4 2 2
2 1 2 4 2 2 7 1 0 1 2 2 3 0 2 0 0 5 3 5 1 1 0 2 2
4 2 2 0 1 0 1 3 9 7 2 3 3 2 2
0 2 0 1 1 0 1 4 1 0
2 3 0 0 0 1 0 2 4 2 2 1 5 6 1
1 2 1 0 1 2 3 0 3 9 2 1 1 8 2 4 5 4 2
2 1 2 0 0 2 3 1 2 2 43 11 5 5
1 0 0 2 1 1 3 0 2
1 0 3 2
1 0 0 0 2 2 1 1 2 1
1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
16144	00	DD	45/ 12	10	17.8	5.9	18.7
31168	12	DD	56/ 138	7	11.2	7.2	19.7
31873	12	DD	46/ 134	17	11.0	5.2	16.0
42339	00	DD	26/ 73	14	11.1	9.5	15.8
42339	12	DD	26/ 73	12	12.0	5.3	19.5
43285	00	DD	13/ 75	5	17.5	8.8	25.6
44288	00	DD	46/ 103	6	39.6	8.7	25.2
53614	00	DD	38/ 106	27	-12.1	8.9	13.5
56080	12	DD	35/ 103	24	-10.8	6.8	13.8
59134	00	DD	24/ 118	28	11.8	2.7	10.1
59134	12	DD	24/ 118	25	12.4	3.8	12.1
60360	12	DD	37/ 8	10	12.2	4.1	15.1
60571	00	DD	32/ -2	12	16.4	7.4	19.3
60571	12	DD	32/ -2	18	10.2	5.3	14.5
67083	00	DD	-19/ 47	19	15.5	7.3	15.0
71853	12	DD	50/-100	18	12.9	4.7	9.8
76256	12	DD	28/-111	21	-13.0	9.7	26.2
91952	00	DD	-22/-139	23	-10.5	5.7	21.8
96315	00	DD	5/ 115	21	11.5	8.8	21.6
96471	12	DD	6/ 116	18	15.7	6.1	25.8

MONITORING OF SATELLITE WINDS

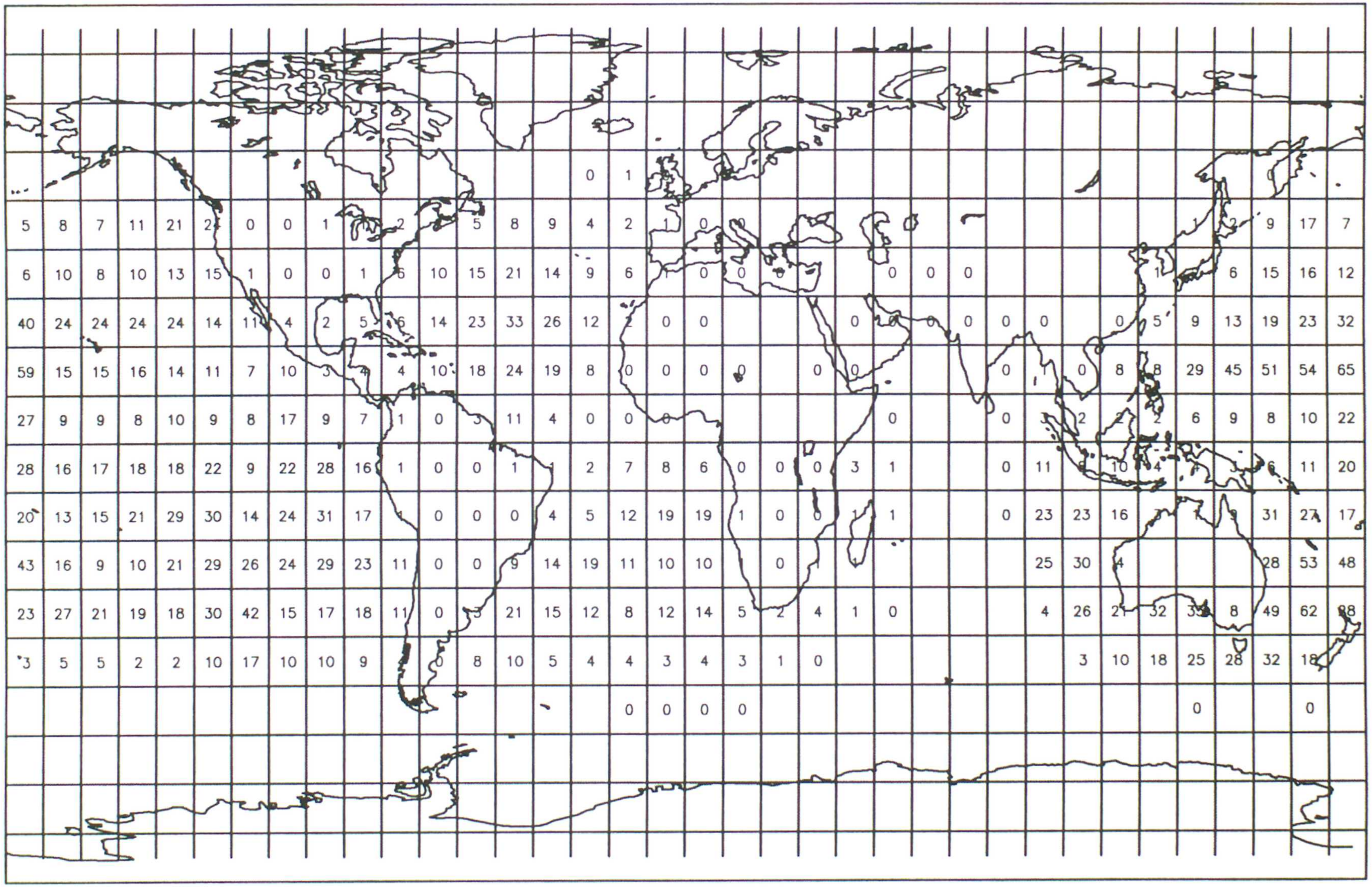
MONITORING CENTRE: BRACKNELL

MONTH: May, 1996

Monitoring procedures

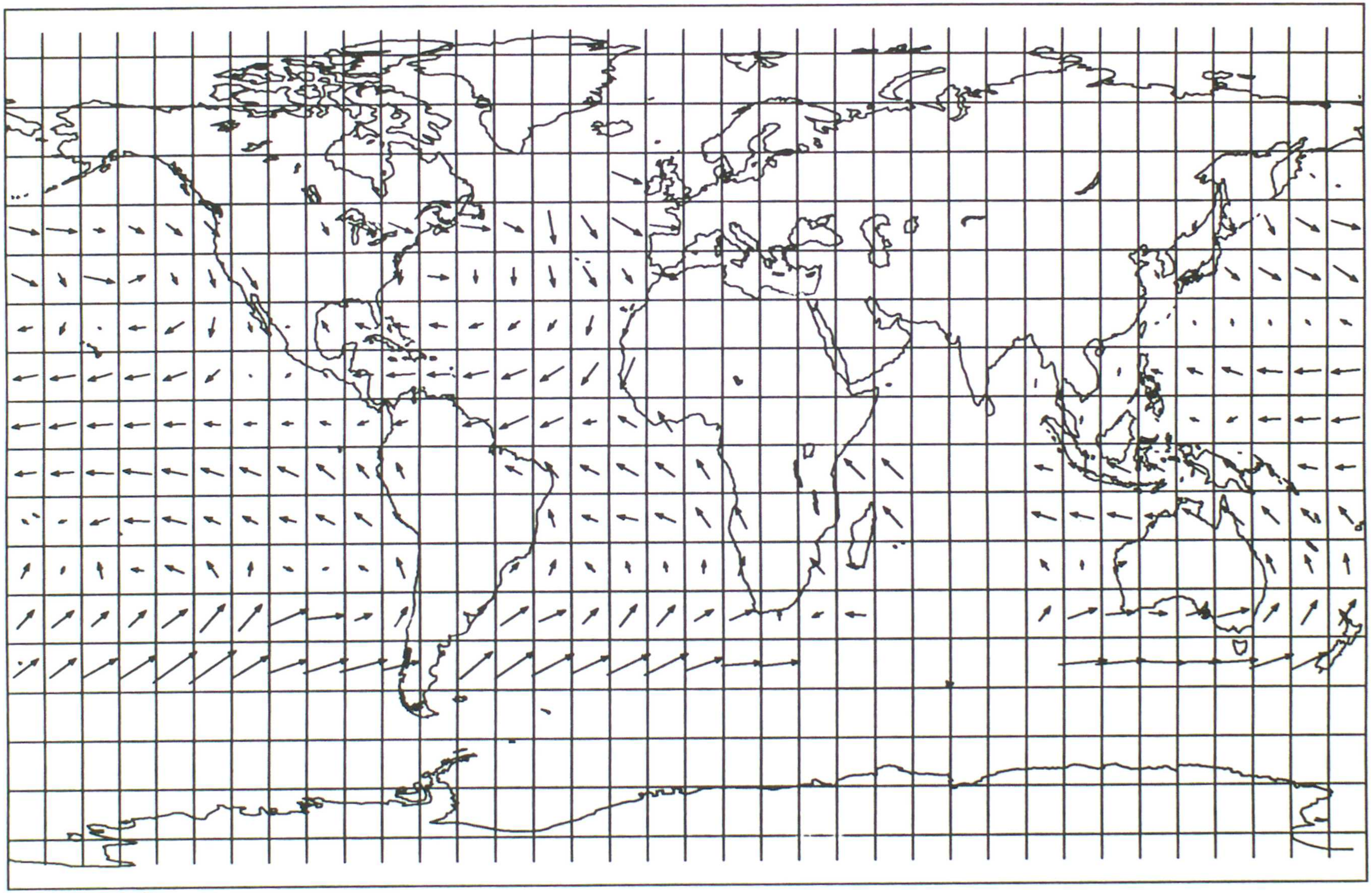
Period	:One calendar month.
Data monitored	:Reports from GOES, METEOSAT, GMS, INSAT.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer 701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
MAY 1996


0 1 0
5 8 7 11 21 24 0 0 1 1 2 5 8 9 4 2 1 0 0 1 2 9 17 7
6 10 8 10 13 15 1 0 0 1 6 10 15 21 14 9 6 1 0 0 0 0 0 0 1 6 15 16 12
40 24 24 24 24 14 11 4 2 5 6 14 23 33 26 12 2 0 0 0 0 0 0 0 0 0 5 9 13 19 23 32
59 15 15 16 14 11 7 10 3 4 4 10 18 24 19 8 0 0 0 0 0 0 0 1 0 8 8 29 45 51 54 65
27 9 9 8 10 9 8 17 9 7 1 0 3 11 4 0 0 0 0 0 3 2 2 2 6 9 8 10 22
28 16 17 18 18 22 9 22 28 16 1 0 0 1 1 2 7 8 6 0 0 0 3 1 0 11 9 10 4 4 3 6 11 20
20 13 15 21 29 30 14 24 31 17 1 0 0 0 4 5 12 19 19 1 0 0 1 1 0 23 23 16 3 1 9 31 27 17
43 16 9 10 21 29 26 24 29 23 11 0 0 9 14 19 11 10 10 1 0 1 1 25 30 4 28 53 48
23 27 21 19 18 30 42 15 17 18 11 0 3 21 15 12 8 12 14 5 2 4 1 0 4 26 21 32 33 8 49 62 38
3 5 5 2 2 10 17 10 10 9 4 0 8 10 5 4 4 3 4 3 1 0 3 10 18 25 28 32 18
0 0 0 0 0 0

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
MAY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

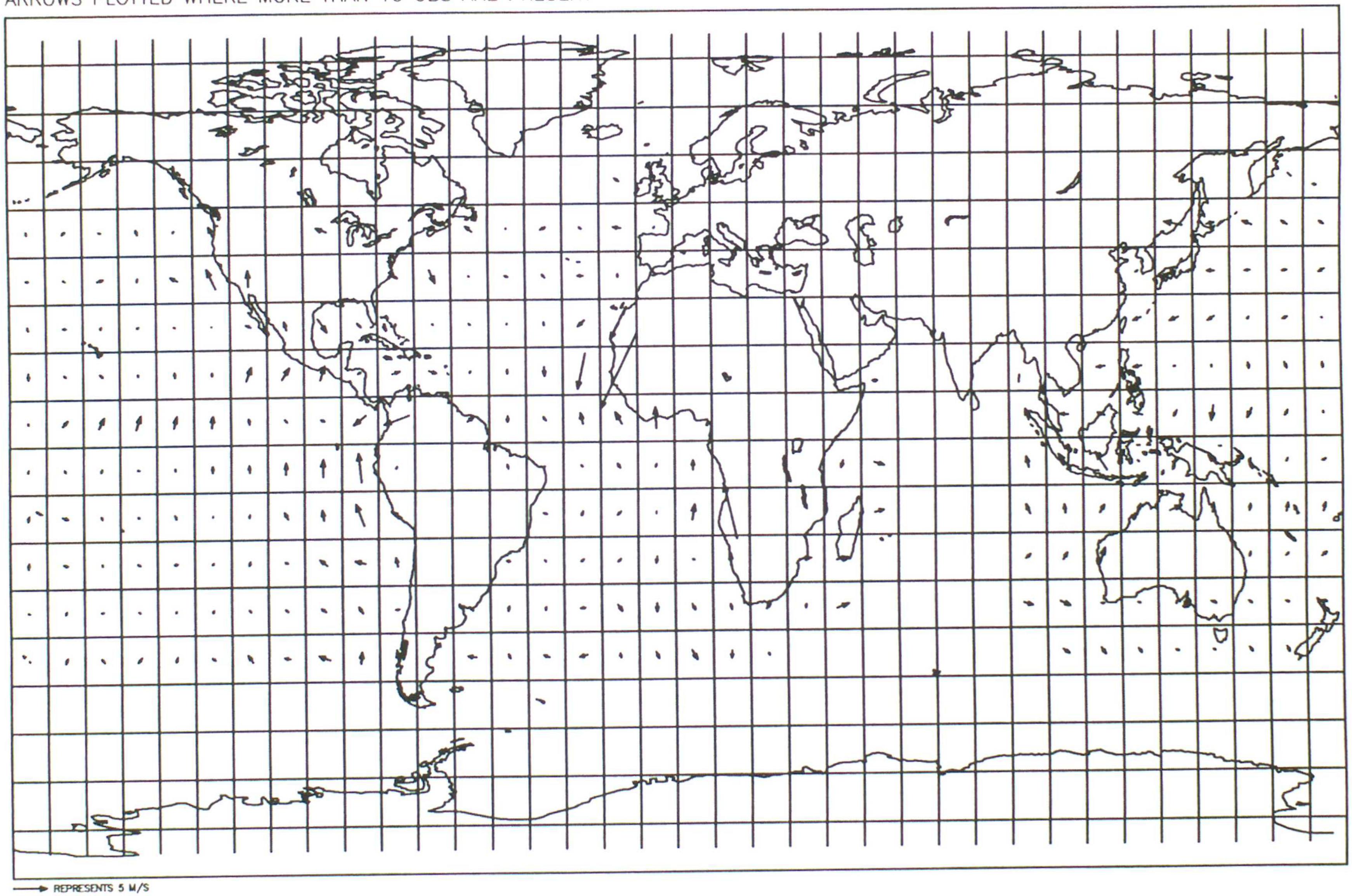
FIGURE 11



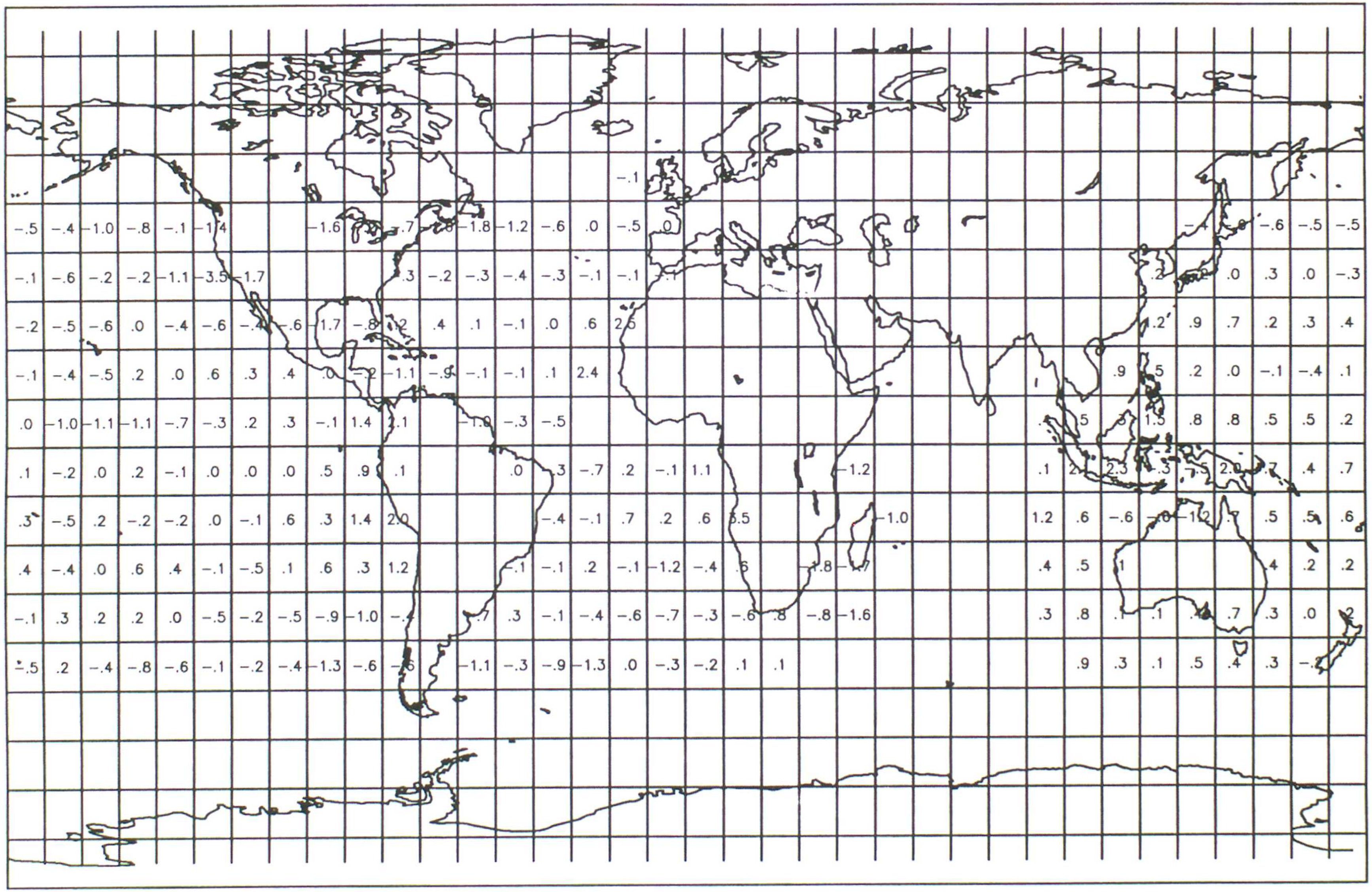
→ REPRESENTS 10 M/S

FIGURE 12

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA
MAY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
MAY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

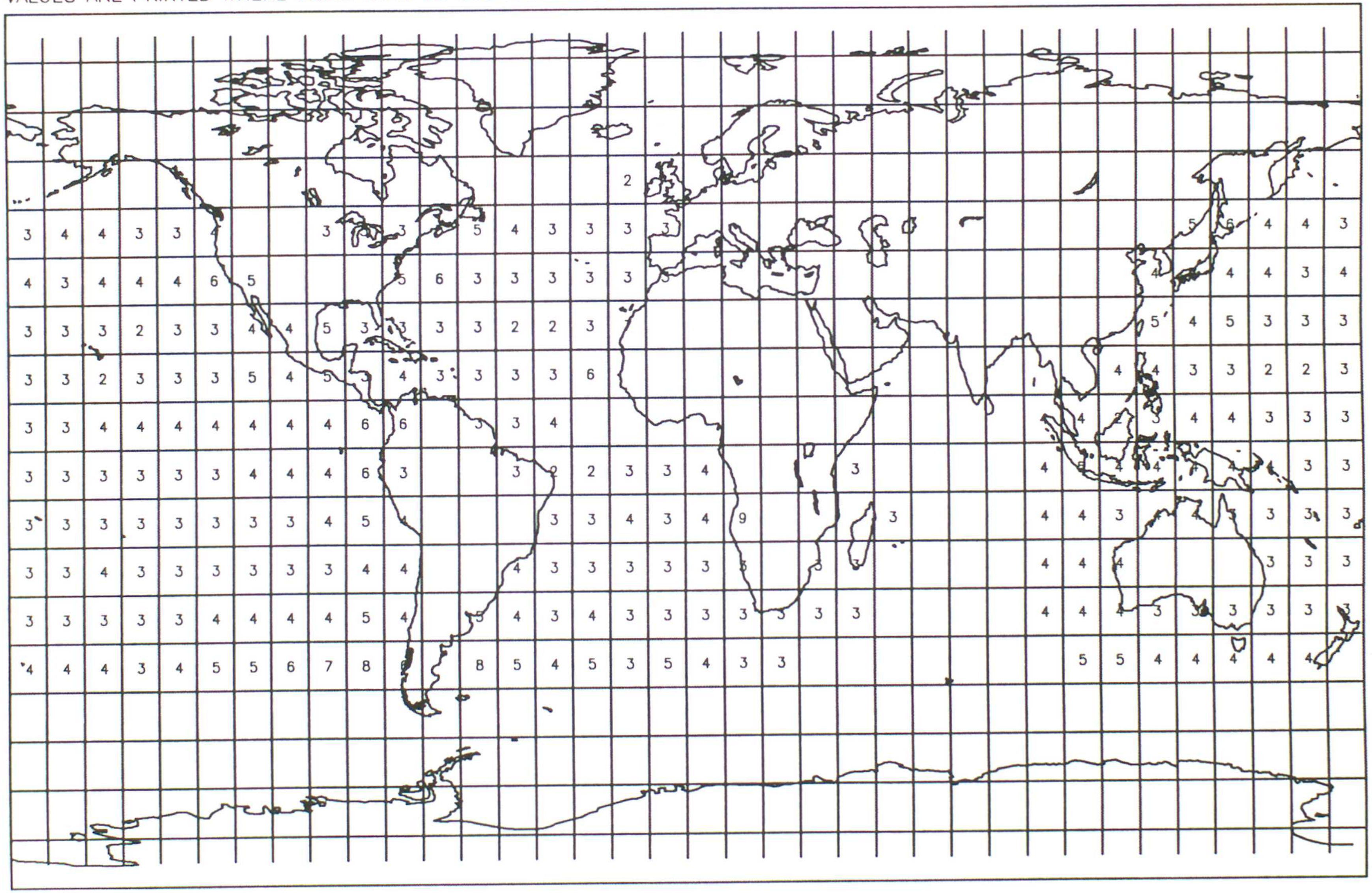

-.1
-.5 -.4 -1.0 -.8 -.1 -1.4 -1.6 -.2 -.7 -.8 -1.8 -1.2 -.6 .0 -.5 .0 -.4 -.8 -.6 -.5 -.5
-.1 -.6 -.2 -.2 -1.1 -3.5 -1.7 .3 -.2 -.3 -.4 -.3 -.1 -.1 -.1 .2 .2 .0 .3 .0 -.3
-.2 -.5 -.6 .0 -.4 -.6 -.4 -.6 -1.7 -.8 .2 .4 .1 -.1 .0 .6 2.5 .2 .9 .7 .2 .3 .4
-.1 -.4 -.5 .2 .0 .6 .3 .4 .0 -.2 -1.1 -.9 -.1 -.1 .1 2.4 .9 .5 .2 .0 -.1 -.4 .1
.0 -1.0 -1.1 -1.1 -.7 -.3 .2 .3 -.1 1.4 2.1 -1.0 -.3 -.5 .5 .5 .3 1.5 .8 .8 .5 .5 .2
.1 -.2 .0 .2 -.1 .0 .0 .0 .5 .9 .1 .0 .3 -.7 .2 -.1 1.1 -1.2 .1 2.1 2.3 .3 1.5 2.0 .7 .4 .7
.3 -.5 .2 -.2 -.2 .0 -.1 .6 .3 1.4 2.0 -.4 -.1 .7 .2 .6 3.5 -1.0 1.2 .6 -.6 -.6 -1.2 .7 .5 .5 .6
.4 -.4 .0 .6 .4 -.1 -.5 .1 .6 .3 1.2 -.1 -.1 .2 -.1 -1.2 -.4 .6 -1.8 -1.7 .4 .5 .1 .4 .2 .2
-.1 .3 .2 .2 .0 -.5 -.2 -.5 -.9 -1.0 -.4 .7 .3 -.1 -.4 -.6 -.7 -.3 -.6 .8 -.8 -1.6 .3 .8 .1 .1 .4 .7 .3 .0 .2
-.5 .2 -.4 -.8 -.6 -.1 -.2 -.4 -1.3 -.6 -.6 -1.1 -.3 -.9 -1.3 .0 -.3 -.2 .1 .1 .9 .3 .1 .5 .4 .3 -.2

SATOBS : RMS O−B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14

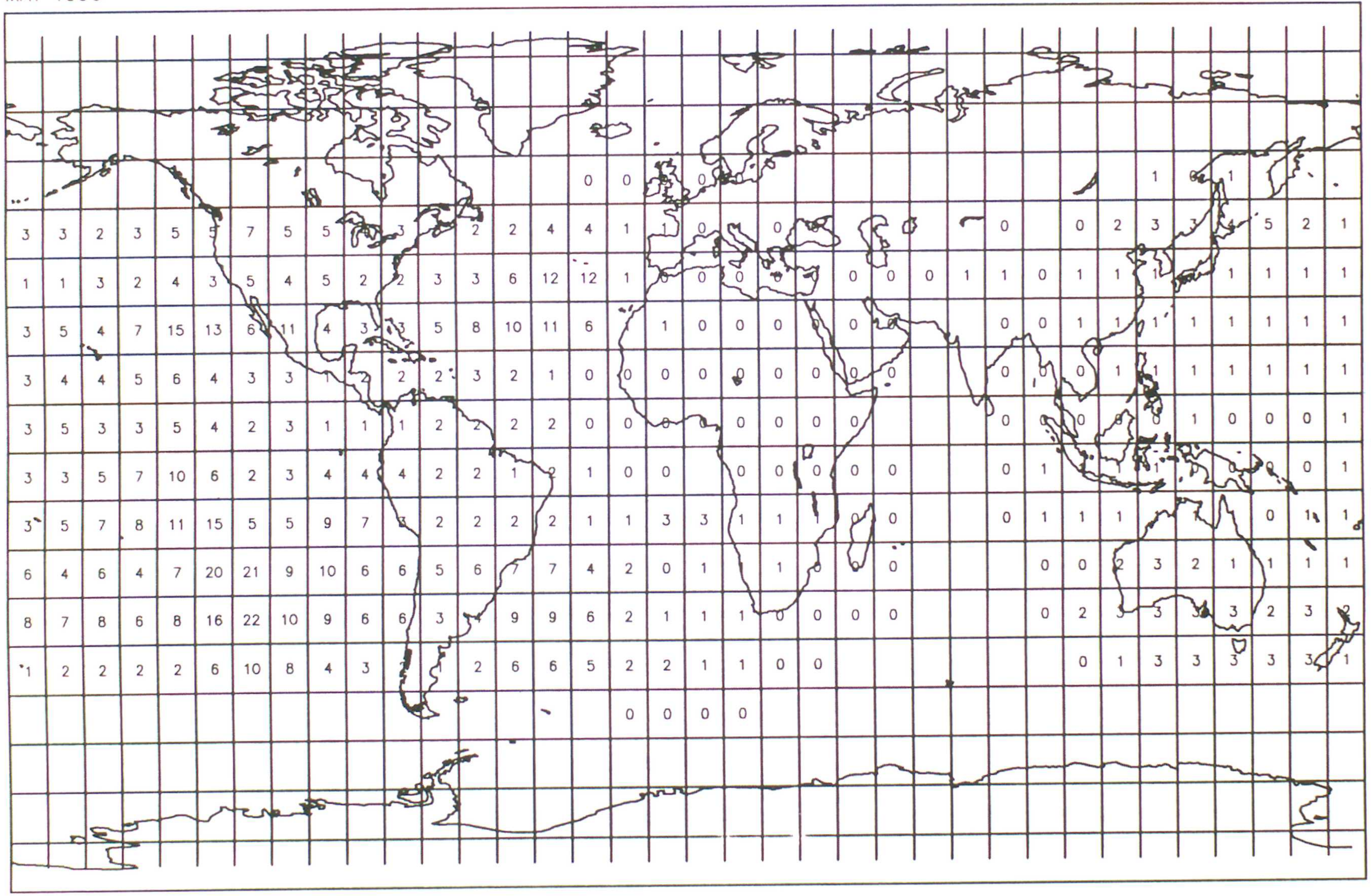
MAY 1996

USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


2
3 4 4 3 3 4 3 3 3 5 4 3 3 3 3 3 5 6 4 4 3
4 3 4 4 4 6 5 5 6 3 3 3 3 3 3 4 4 4 3 4
3 3 3 2 3 3 4 4 5 3 3 3 3 2 2 3 5 4 5 3 3 3
3 3 2 3 3 3 5 4 5 3 4 3 3 3 3 6 4 4 3 3 2 2 3
3 3 4 4 4 4 4 4 4 6 6 3 3 4 4 2 3 4 4 3 3 3
3 3 3 3 3 3 4 4 4 6 3 3 2 2 3 3 4 3 4 6 4 4 4 4 3 3
3 3 3 3 3 3 3 3 4 5 4 3 3 4 3 4 9 3 4 4 3 4 3 3 3
3 3 4 3 3 3 3 3 3 4 4 4 3 3 3 3 3 3 3 3 4 4 4 3 3 3
3 3 3 3 3 4 4 4 4 5 4 5 4 3 4 3 3 3 3 3 3 3 4 4 4 3 3 3 3 3 3
4 4 4 3 4 5 5 6 7 8 6 8 5 4 5 3 5 4 3 3 5 5 4 4 4 4 4

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
MAY 1996



0 0 0 1 0 1
3 3 2 3 5 5 7 5 5 3 2 2 4 4 1 1 0 0 0 0 2 3 3 4 5 2 1
1 1 3 2 4 3 5 4 5 2 2 3 3 6 12 12 1 0 0 0 0 0 0 0 0 1 1 0 1 1 1 1 1 1 1
3 5 4 7 15 13 6 11 4 3 3 5 8 10 11 6 1 1 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1
3 4 4 5 6 4 3 3 1 2 2 2 3 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1
3 5 3 3 5 4 2 3 1 1 1 2 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 1
3 3 5 7 10 6 2 3 4 4 4 2 2 1 2 1 0 0 0 0 0 0 0 0 1 1 1 1 0 0 0 1
3 5 7 8 11 15 5 5 9 7 3 2 2 2 2 1 1 3 3 1 1 1 0 0 0 1 1 1 1 0 1 1
6 4 6 4 7 20 21 9 10 6 6 5 6 7 7 4 2 0 1 1 0 0 0 0 2 3 2 1 1 1 1
8 7 8 6 8 16 22 10 9 6 6 3 4 9 9 6 2 1 1 1 0 0 0 0 0 2 3 3 3 3 2 3 2
1 2 2 2 2 6 10 8 4 3 3 1 2 6 6 5 2 2 1 1 0 0 0 1 3 3 3 3 3 1
0 0 0 0

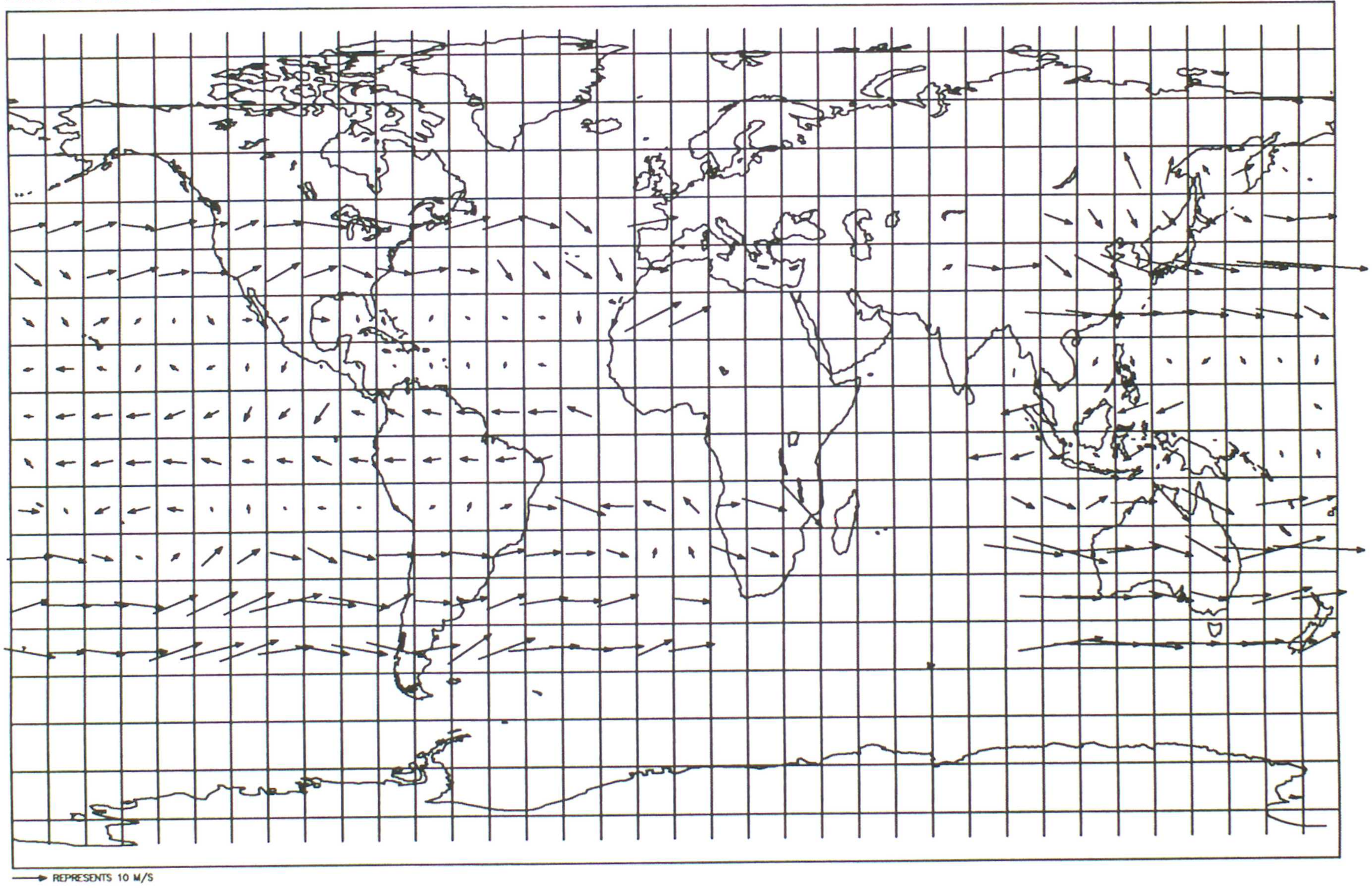
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA

FIGURE 16

MAY 1996

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

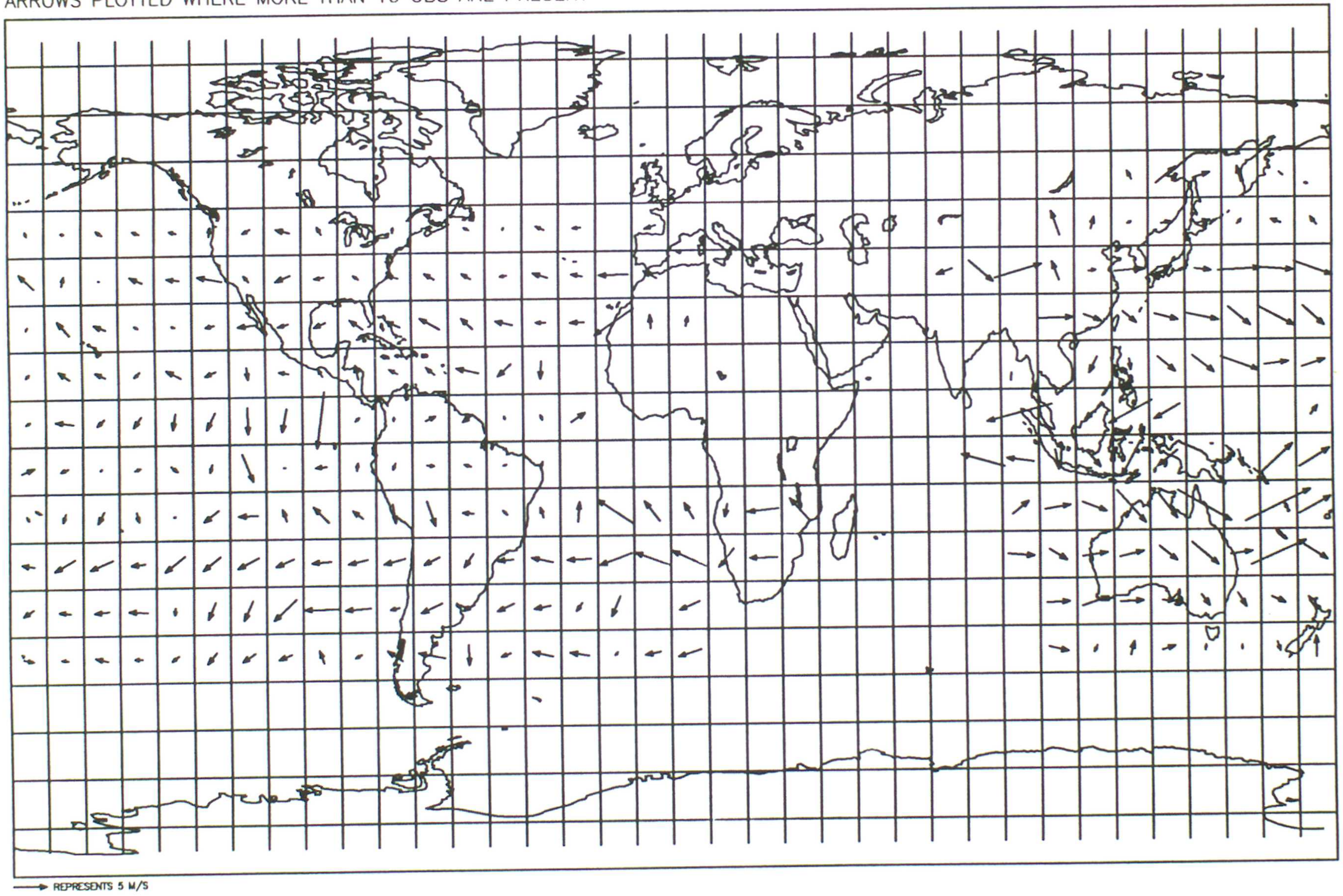
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

FIGURE 17

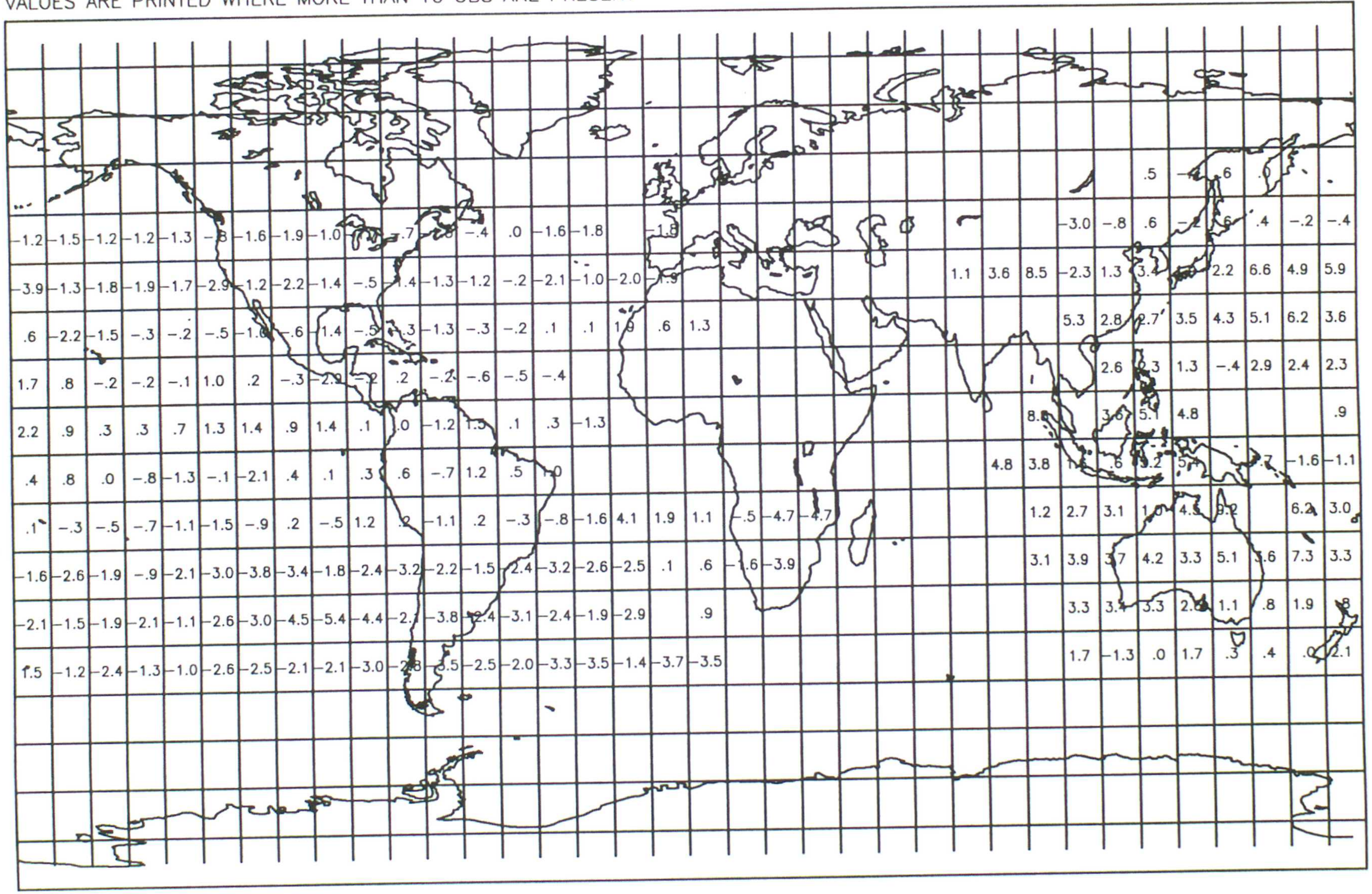
MAY 1996

ALL OBSERVATIONS

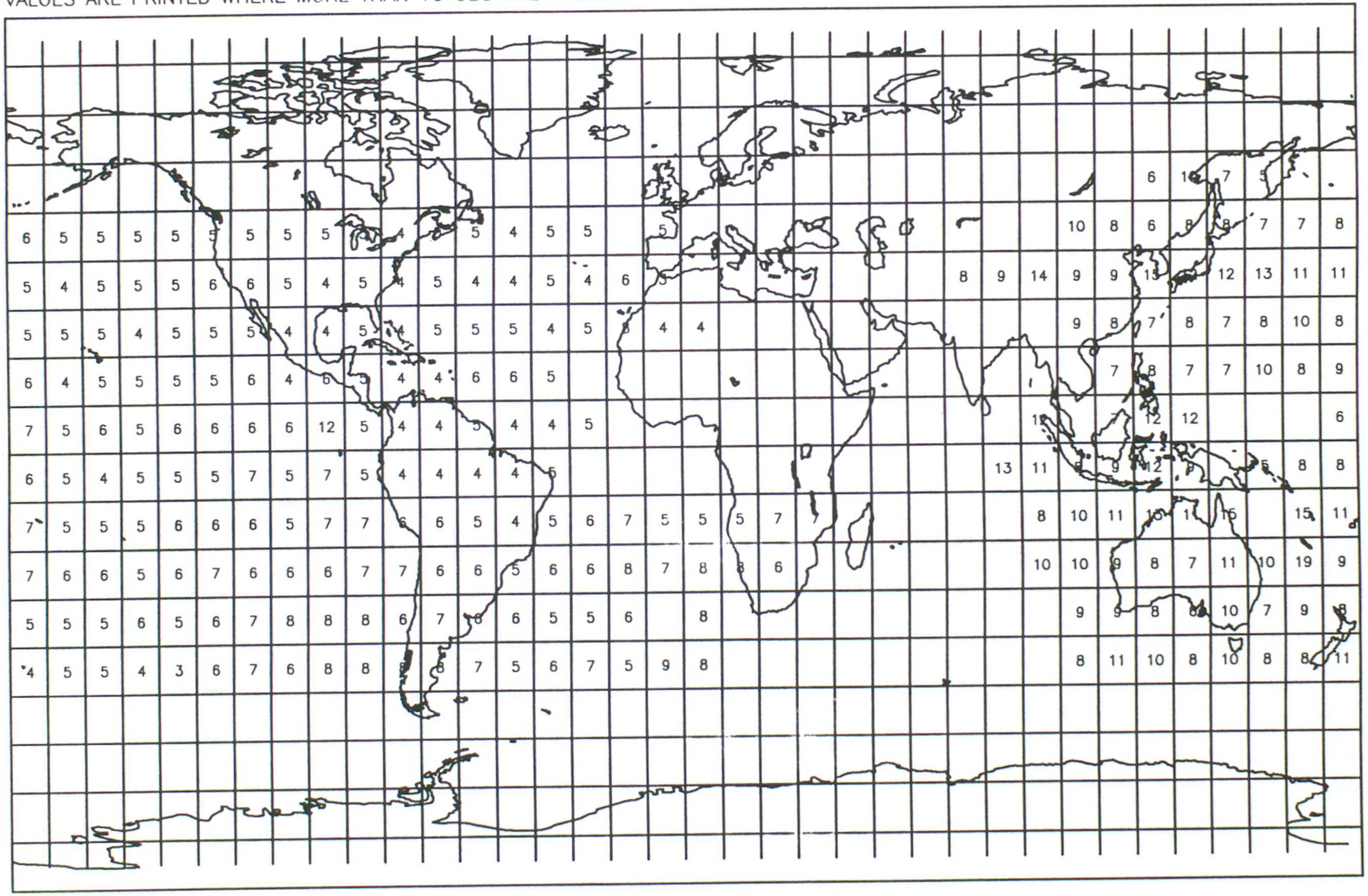
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

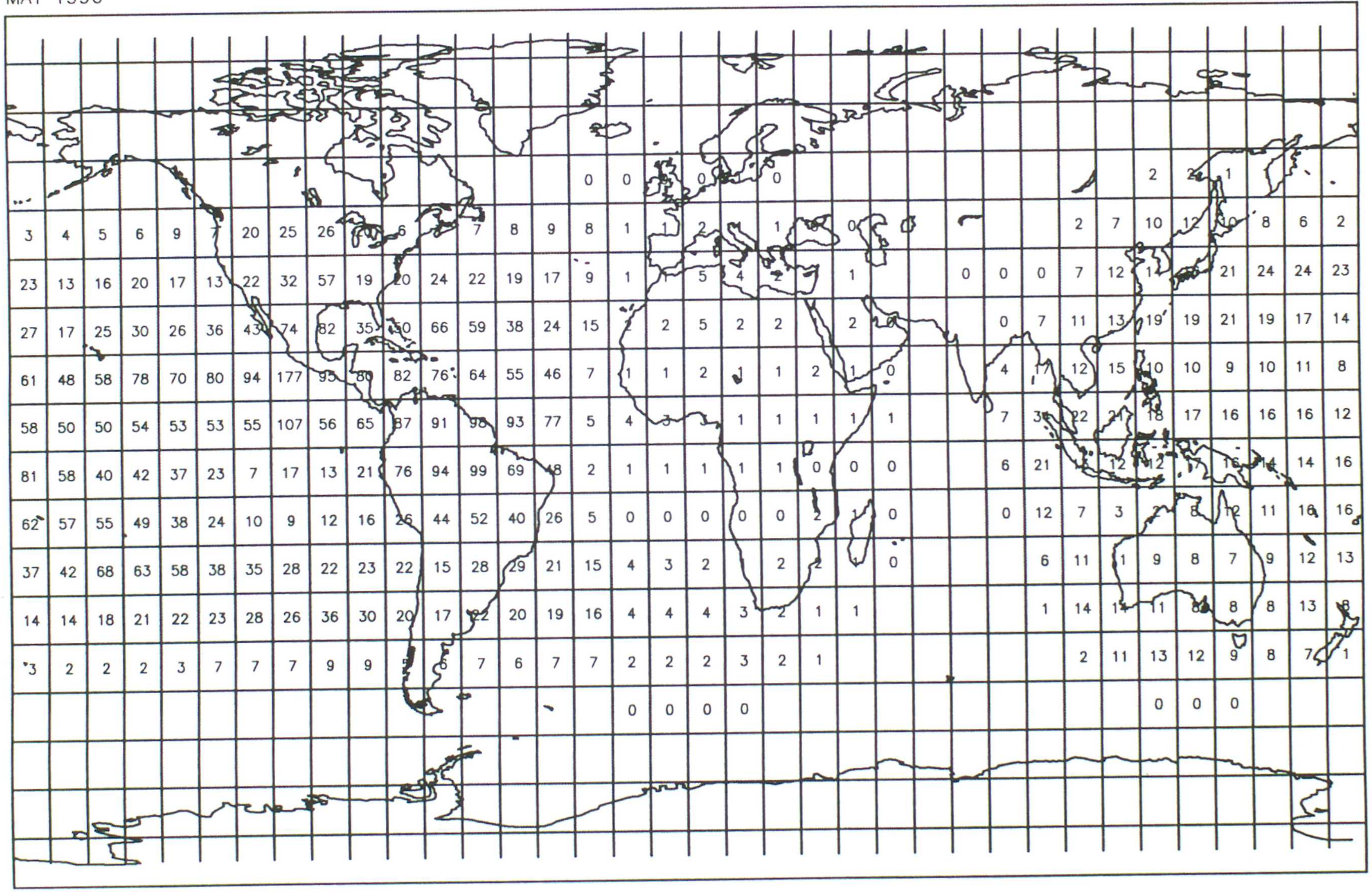
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
MAY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.5 .6
-1.2 -1.5 -1.2 -1.2 -1.3 -.8 -1.6 -1.9 -1.0 .7 -.8 -.4 .0 -1.6 -1.8 -1.8 -3.0 -.8 .6 -.2 .6 .4 -.2 -.4
-3.9 -1.3 -1.8 -1.9 -1.7 -2.9 -1.2 -2.2 -1.4 -.5 1.4 -1.3 -1.2 -.2 -2.1 -1.0 -2.0 -1.9 1.1 3.6 8.5 -2.3 1.3 3.4 2.2 6.6 4.9 5.9
.6 -2.2 -1.5 -.3 -.2 -.5 -1.6 -.6 1.4 -.5 -.3 -1.3 -.3 -.2 .1 .1 1.9 .6 1.3 5.3 2.8 2.7 3.5 4.3 5.1 6.2 3.6
1.7 .8 -.2 -.2 -.1 1.0 .2 -.3 -2.9 .2 .2 -.2 -.6 -.5 -.4 2.6 .3 1.3 -.4 2.9 2.4 2.3
2.2 .9 .3 .3 .7 1.3 1.4 .9 1.4 .1 .0 -1.2 1.5 .1 .3 -1.3 8.8 3.6 5.1 4.8 .9
.4 .8 .0 -.8 -1.3 -.1 -2.1 .4 .1 .3 .6 -.7 1.2 .5 1.0 4.8 3.8 1.6 .6 3.2 5.4 .7 -1.6 -1.1
.1 -.3 -.5 -.7 -1.1 -1.5 -.9 .2 -.5 1.2 .2 -1.1 .2 -.3 -.8 -1.6 4.1 1.9 1.1 -.5 -4.7 -4.7 1.2 2.7 3.1 1.0 4.5 3.2 6.2 3.0
-1.6 -2.6 -1.9 -.9 -2.1 -3.0 -3.8 -3.4 -1.8 -2.4 -3.2 -2.2 -1.5 -2.4 -3.2 -2.6 -2.5 .1 .6 -1.6 -3.9 3.1 3.9 3.7 4.2 3.3 5.1 3.6 7.3 3.3
-2.1 -1.5 -1.9 -2.1 -1.1 -2.6 -3.0 -4.5 -5.4 -4.4 -2.1 -3.8 -2.4 -3.1 -2.4 -1.9 -2.9 .9 3.3 3.4 3.3 2.8 1.1 .8 1.9 .8
1.5 -1.2 -2.4 -1.3 -1.0 -2.6 -2.5 -2.1 -2.1 -3.0 -2.8 -3.5 -2.5 -2.0 -3.3 -3.5 -1.4 -3.7 -3.5 1.7 -1.3 .0 1.7 .3 .4 .0 2.1

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
MAY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 1 7 5
6 5 5 5 5 5 5 5 5 4 5 4 5 5 5 10 8 6 8 8 7 7 8
5 4 5 5 5 6 6 5 4 5 4 5 4 4 5 4 6 5 8 9 14 9 9 13 12 13 11 11
5 5 5 4 5 5 5 4 4 5 4 5 5 5 4 5 5 4 4 9 8 7 8 7 8 10 8
6 4 5 5 5 5 6 4 6 4 4 6 6 5 7 8 7 7 10 8 9
7 5 6 5 6 6 6 6 12 5 4 4 5 4 4 5 1 7 12 12 6
6 5 4 5 5 5 7 5 7 5 4 4 4 4 5 13 11 9 9 12 9 5 8 8
7 5 5 5 6 6 6 5 7 7 6 6 5 4 5 6 7 5 5 5 7 8 10 11 10 1 15 15 11
7 6 6 5 6 7 6 6 6 7 7 6 6 5 6 6 8 7 8 8 6 10 10 9 8 7 11 10 19 9
5 5 5 6 5 6 7 8 8 8 6 7 6 6 5 5 6 8 9 9 8 8 10 7 9 8
4 5 5 4 3 6 7 6 8 8 8 8 7 5 6 7 5 9 8 8 11 10 8 10 8 8 11

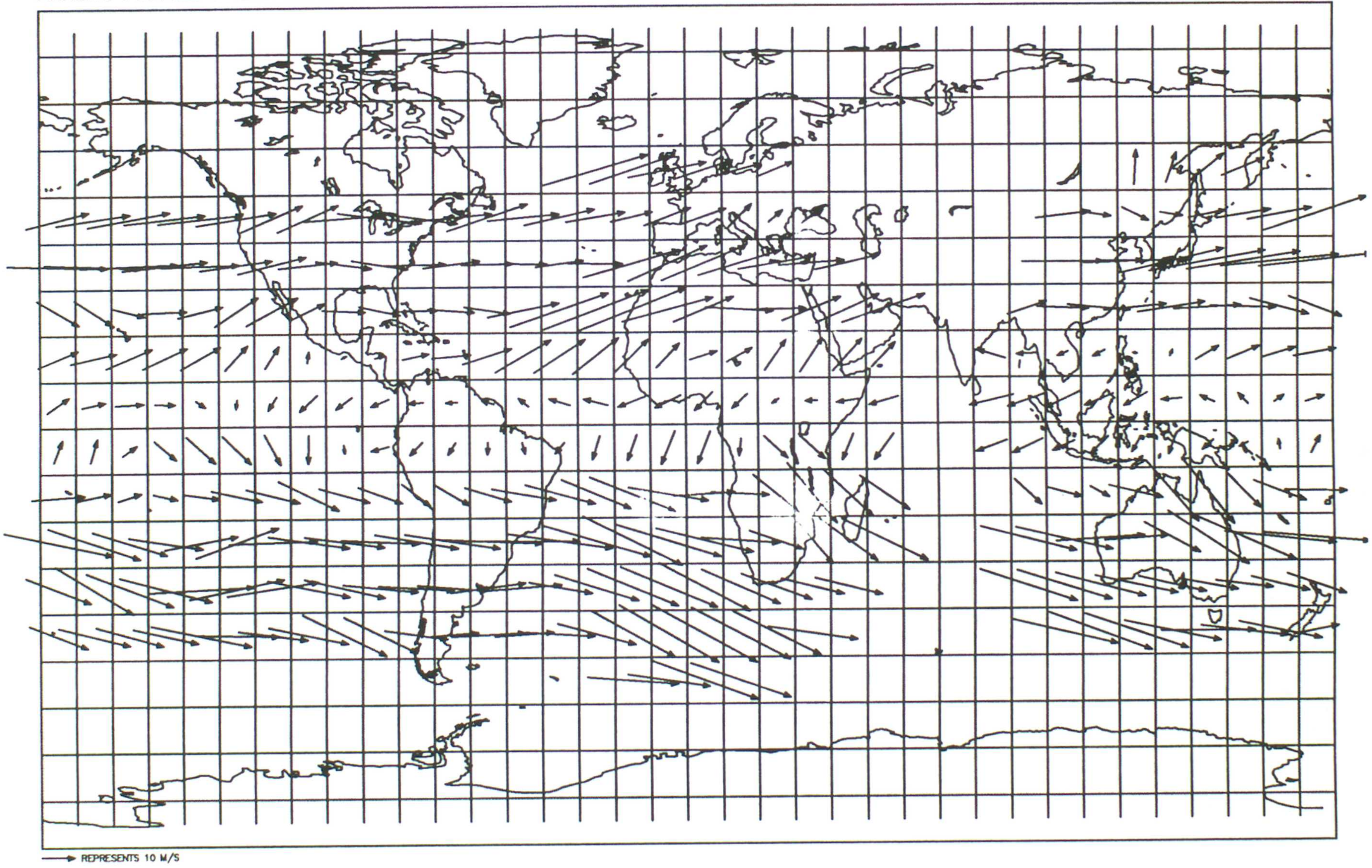
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
MAY 1996



															0	0		0		0										2	2	1			
3	4	5	6	9	7	20	25	26	[illegible]	6		7	8	9	8	1	1	2	[illegible]	1	0	0						2	7	10	12	10	8	6	2
23	13	16	20	17	13	22	32	57	19	20	24	22	19	17	9	1	1	5	4	2		1			0	0	0	7	12	[illegible]	[illegible]	21	24	24	23
27	17	25	30	26	36	43	74	82	35	50	66	59	38	24	15	2	2	5	2	2		2	0			0	7	11	13	19	19	21	19	17	14
61	48	58	78	70	80	94	177	95	80	82	76	64	55	46	7	1	1	2	1	1	2	1	0			4	17	12	15	10	10	9	10	11	8
58	50	50	54	53	53	55	107	56	65	87	91	98	93	77	5	4	3	3	1	1	1	1	1			7	[illegible]	22	21	18	17	16	16	16	12
81	58	40	42	37	23	7	17	13	21	76	94	99	69	48	2	1	1	1	1	1	0	0	0			6	21	[illegible]	12	12	17	16	14	14	16
62	57	55	49	38	24	10	9	12	16	26	44	52	40	26	5	0	0	0	0	0	2	1	0			0	12	7	3	2	8	12	11	16	16
37	42	68	63	58	38	35	28	22	23	22	15	28	29	21	15	4	3	2		2	2	1	0				6	11	1	9	8	7	9	12	13
14	14	18	21	22	23	28	26	36	30	20	17	22	20	19	16	4	4	4	3	2	1	1					1	14	14	11	8	8	8	13	8
3	2	2	2	3	7	7	7	9	9	5	6	7	6	7	7	2	2	2	3	2	1							2	11	13	12	9	8	7	1
																0	0	0	0											0	0	0			

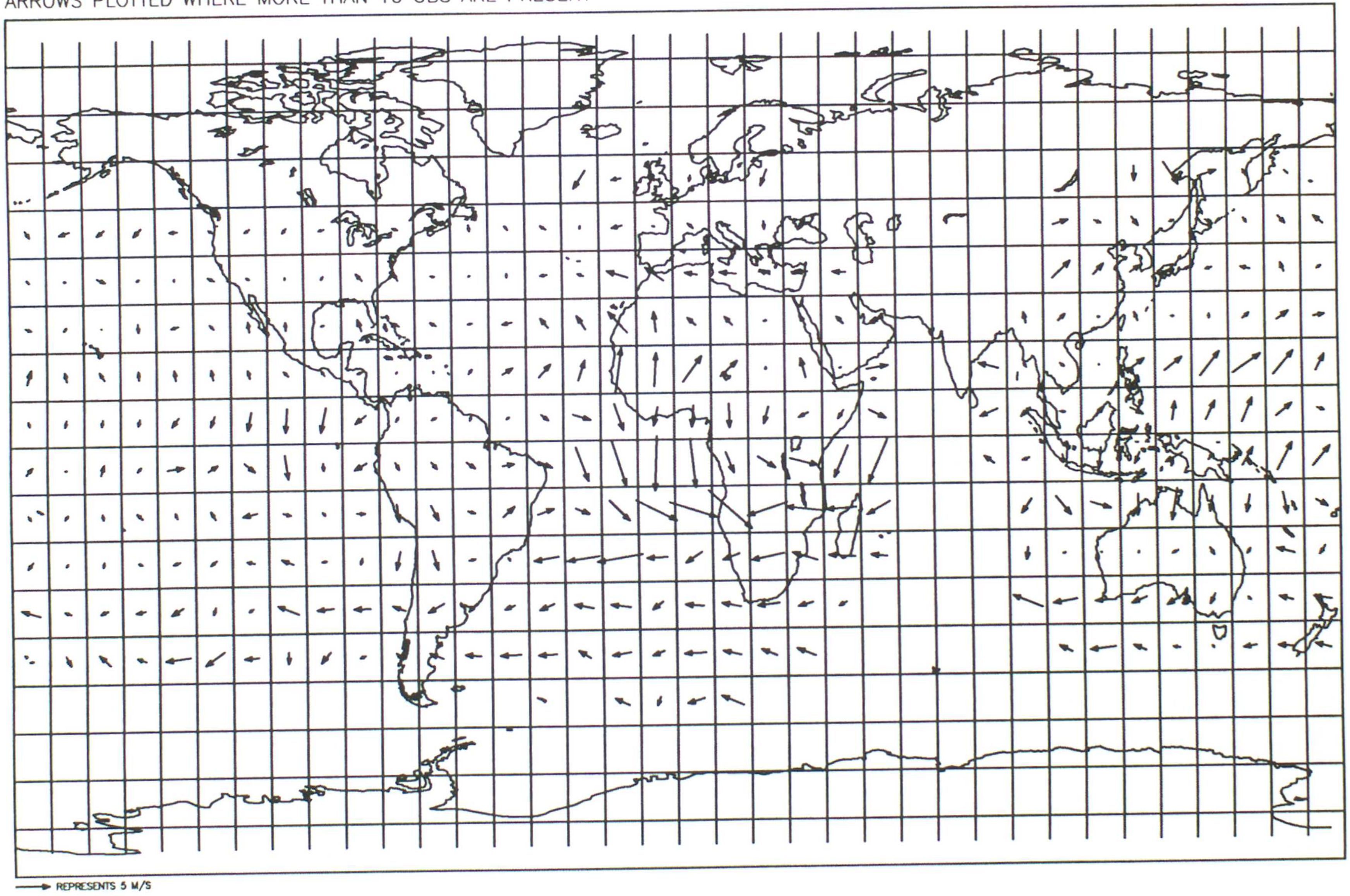
FIGURE 21

SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
MAY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA
MAY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 22

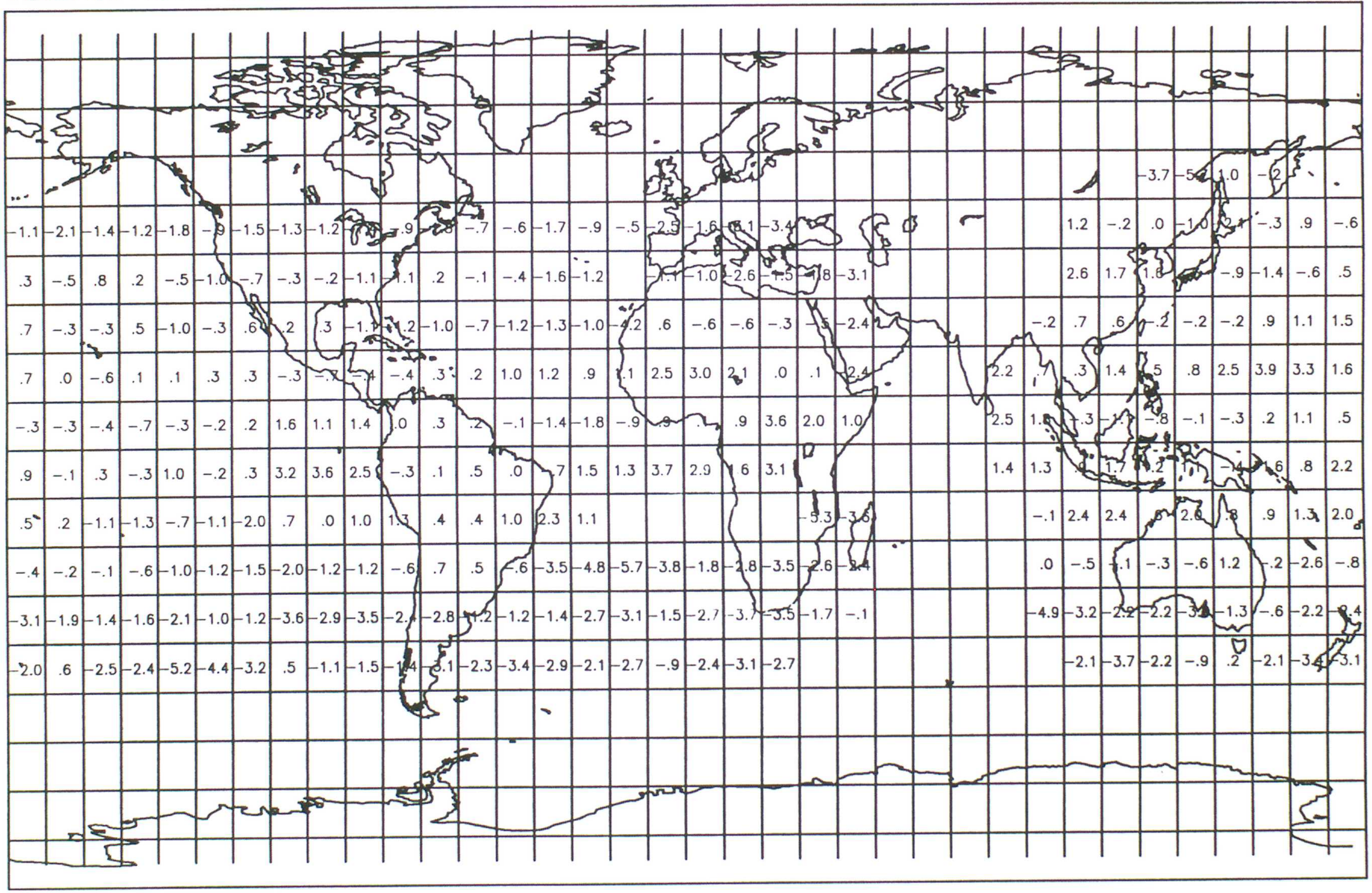

REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23

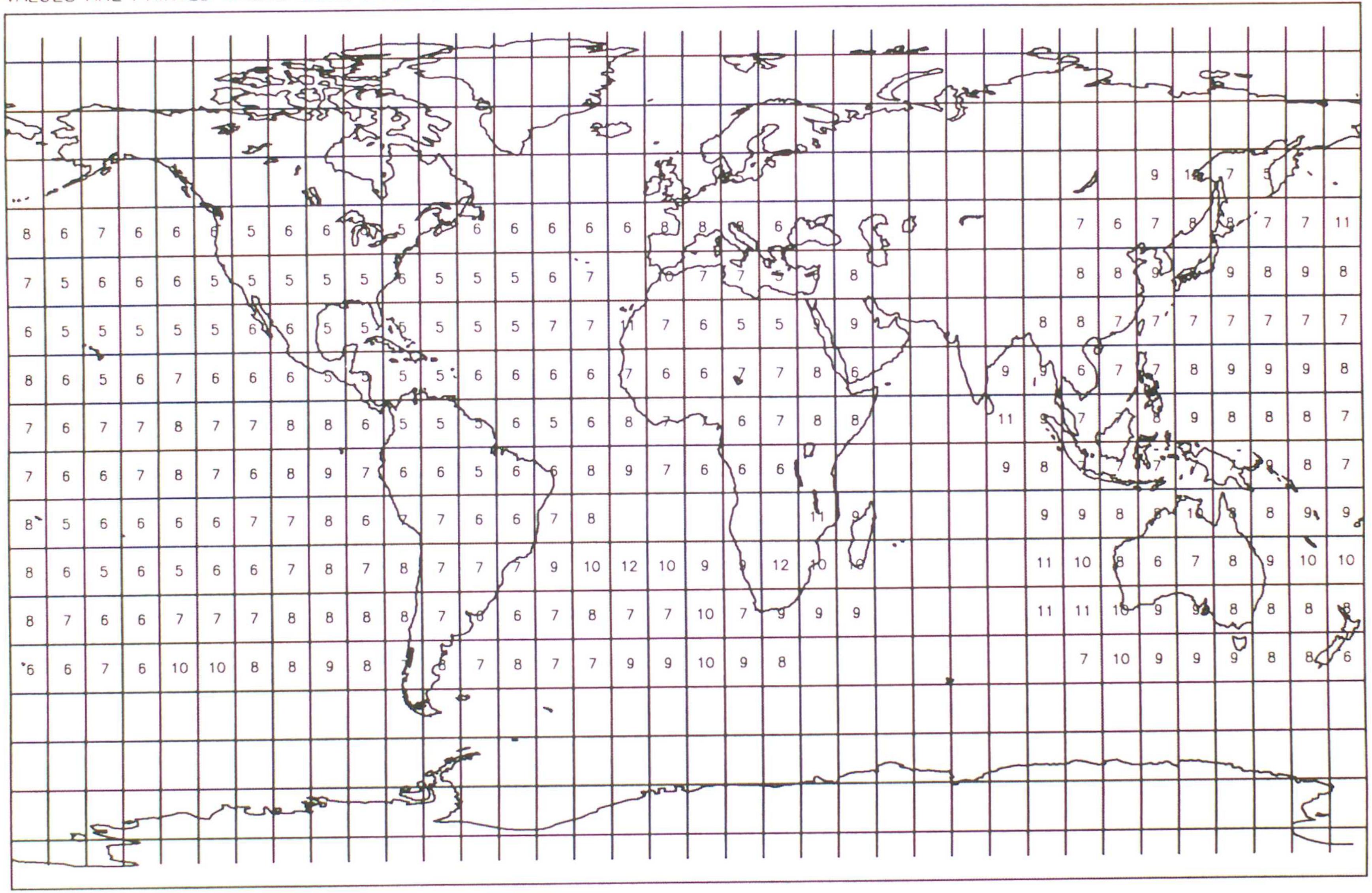
MAY 1996

USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-3.7 -5 1.0 -.2
-1.1 -2.1 -1.4 -1.2 -1.8 -.9 -1.5 -1.3 -1.2 -.9 -.8 -.7 -.6 -1.7 -.9 -.5 -2.5 -1.6 -3.1 -3.4 1.2 -.2 .0 -1.0 2.1 -.3 .9 -.6
.3 -.5 .8 .2 -.5 -1.0 -.7 -.3 -.2 -1.1 -1.1 .2 -.1 -.4 -1.6 -1.2 -1.1 -1.0 -2.6 -1.5 -1.8 -3.1 2.6 1.7 1.6 -.9 -1.4 -.6 .5
.7 -.3 -.3 .5 -1.0 -.3 .6 .2 .3 -1.1 -1.2 -1.0 -.7 -1.2 -1.3 -1.0 -4.2 .6 -.6 -.6 -.3 -.5 -2.4 -.2 .7 .6 -.2 -.2 -.2 .9 1.1 1.5
.7 .0 -.6 .1 .1 .3 .3 -.3 -.7 -.4 -.4 .3 .2 1.0 1.2 .9 1.1 2.5 3.0 2.1 .0 .1 2.4 2.2 .7 .3 1.4 .5 .8 2.5 3.9 3.3 1.6
-.3 -.3 -.4 -.7 -.3 -.2 .2 1.6 1.1 1.4 .0 .3 .2 -.1 -1.4 -1.8 -.9 -.9 .9 3.6 2.0 1.0 2.5 1.8 -.3 -1.1 -.8 -.1 -.3 .2 1.1 .5
.9 -.1 .3 -.3 1.0 -.2 .3 3.2 3.6 2.5 -.3 .1 .5 .0 .7 1.5 1.3 3.7 2.9 1.6 3.1 1.4 1.3 .9 1.7 1.2 1.1 -.4 .6 .8 2.2
.5 .2 -1.1 -1.3 -.7 -1.1 -2.0 .7 .0 1.0 1.3 .4 .4 1.0 2.3 1.1 -5.3 -3.6 -.1 2.4 2.4 .6 2.0 .8 .9 1.3 2.0
-.4 -.2 -.1 -.6 -1.0 -1.2 -1.5 -2.0 -1.2 -1.2 -.6 .7 .5 -.6 -3.5 -4.8 -5.7 -3.8 -1.8 -2.8 -3.5 -2.6 -2.4 .0 -.5 -1.1 -.3 -.6 1.2 -.2 -2.6 -.8
-3.1 -1.9 -1.4 -1.6 -2.1 -1.0 -1.2 -3.6 -2.9 -3.5 -2.4 -2.8 -1.2 -1.2 -1.4 -2.7 -3.1 -1.5 -2.7 -3.7 -3.5 -1.7 -.1 -4.9 -3.2 -2.2 -2.2 -3.1 -1.3 -.6 -2.2 -2.4
-2.0 .6 -2.5 -2.4 -5.2 -4.4 -3.2 .5 -1.1 -1.5 -1.4 -3.1 -2.3 -3.4 -2.9 -2.1 -2.7 -.9 -2.4 -3.1 -2.7 -2.1 -3.7 -2.2 -.9 .2 -2.1 -3.4 -3.1

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
MAY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


9 10 7 5
8 6 7 6 6 6 5 6 6 5 6 6 6 6 6 8 8 8 6 7 6 7 8 8 7 7 11
7 5 6 6 6 5 5 5 5 5 6 5 5 5 6 7 10 7 7 5 8 8 8 9 9 8 9 8
6 5 5 5 5 5 6 6 5 5 5 5 5 5 7 7 11 7 6 5 5 9 9 8 8 7 7 7 7 7 7 7
8 6 5 6 7 6 6 6 5 5 5 5 6 6 6 6 7 6 6 7 7 8 6 9 9 6 7 7 8 9 9 9 8
7 6 7 7 8 7 7 8 8 6 5 5 5 6 5 6 8 7 6 7 8 8 11 9 7 7 8 9 8 8 8 7
7 6 6 7 8 7 6 8 9 7 6 6 5 6 6 8 9 7 6 6 6 9 8 7 7 9 8 7
8 5 6 6 6 6 7 7 8 6 7 7 6 6 7 8 11 9 9 9 8 8 10 8 8 9 9
8 6 5 6 5 6 6 7 8 7 8 7 7 7 9 10 12 10 9 9 12 10 10 11 10 8 6 7 8 9 10 10
8 7 6 6 7 7 7 8 8 8 8 7 10 6 7 8 7 7 10 7 9 9 9 11 11 10 9 9 8 8 8 8
6 6 7 6 10 10 8 8 9 8 7 8 7 8 7 7 9 9 10 9 8 7 10 9 9 9 8 8 6

MONITORING OF SATELLITE TEMPERATURES

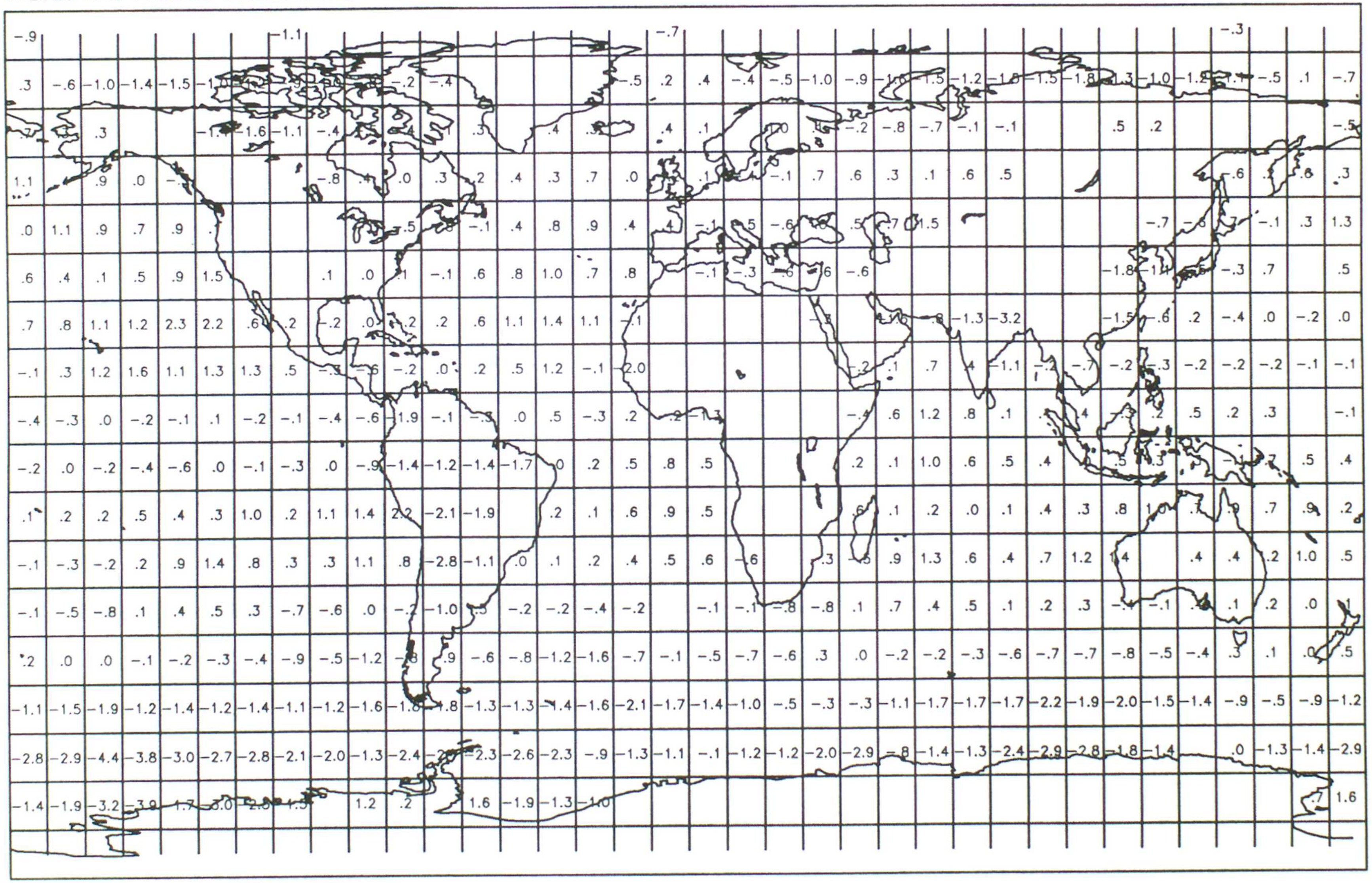
MONITORING CENTRE: BRACKNELL

MONTH: May, 1996

Monitoring procedures

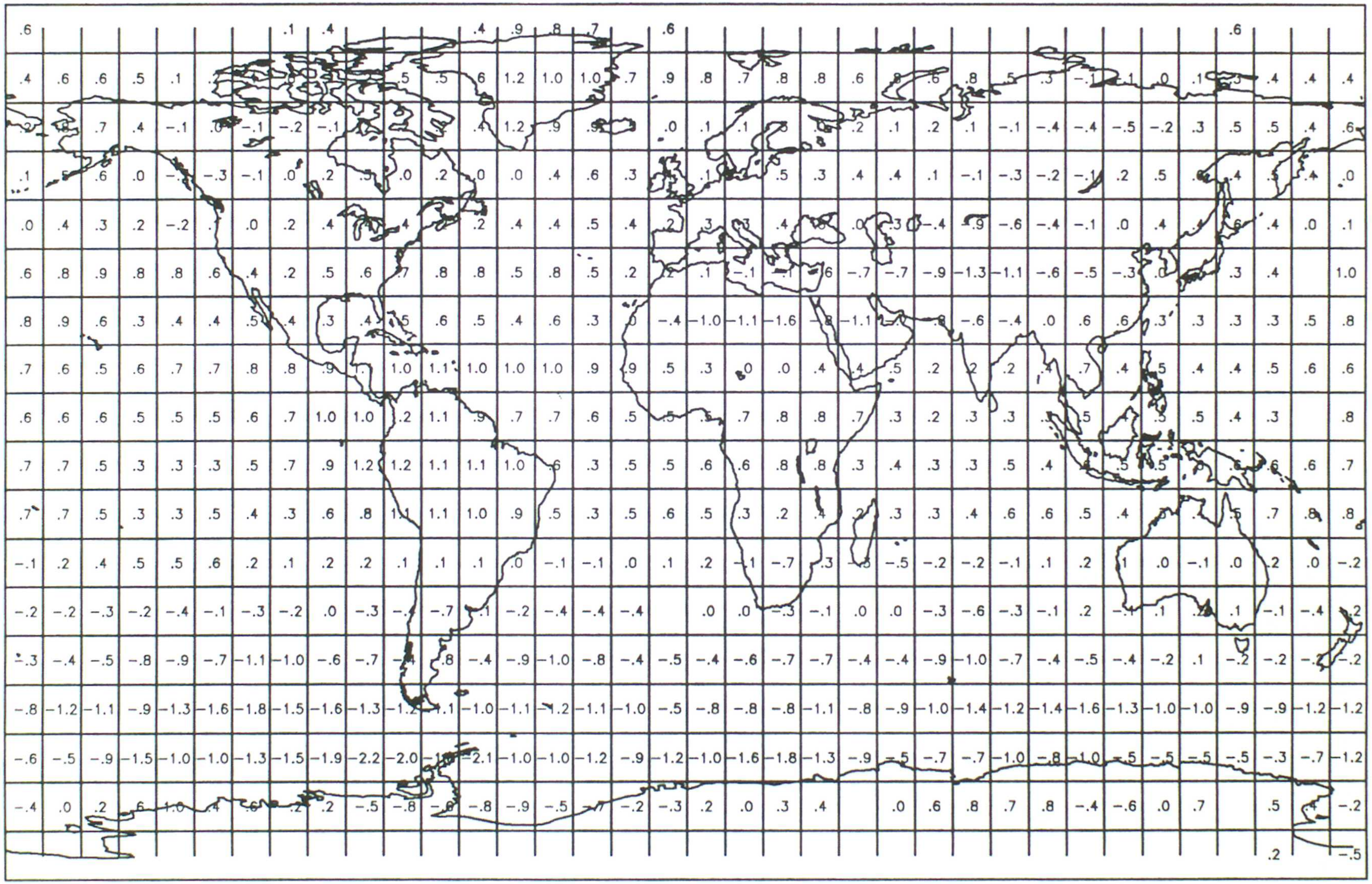
Period	:One calendar month.
Data monitored	:Reports from NOAA-12, NOAA-14 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer: 850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa
	:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
MAY 1996
FIGURE 25
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



-.9 -1.1 -.7 -.3
.3 -.6 -1.0 -1.4 -1.5 -.2 -.4 -.5 .2 .4 -.4 -.5 -1.0 -.9 -1.5 -1.2 -1.5 -1.8 -1.0 -.5 .1 -.7
.3 -1.6 -1.1 -.4 .3 .4 .4 .1 -.2 -.8 -.7 -.1 -.1 .5 .2
1.1 .9 .0 -.8 .0 .3 .2 .4 .3 .7 .0 -.1 .7 .6 .3 .1 .6 .5 -.6 .3
.0 1.1 .9 .7 .9 -.1 .4 .8 .9 .4 .4 .5 1.5 -.7 -.1 .3 1.3
.6 .4 .1 .5 .9 1.5 .1 .0 .1 -.1 .6 .8 1.0 .7 .8 -.1 -.3 -.6 -1.8 -.3 .7 .5
.7 .8 1.1 1.2 2.3 2.2 .6 .2 -.2 .0 .2 .2 .6 1.1 1.4 1.1 .1 -1.3 -3.2 -1.5 .6 .2 -.4 .0 -.2 .0
-.1 .3 1.2 1.6 1.1 1.3 1.3 .5 -.2 .0 .2 .5 1.2 -.1 2.0 .2 .1 .7 .4 -1.1 -.7 -.2 .3 -.2 -.2 -.2 -.1 -.1
-.4 -.3 .0 -.2 -.1 .1 -.2 -.1 -.4 -.6 1.9 -.1 .0 .5 -.3 .2 .6 1.2 .8 .1 .4 .2 .5 .2 .3 -.1
-.2 .0 -.2 -.4 -.6 .0 -.1 -.3 .0 -1.4 -1.2 -1.4 -1.7 .0 .2 .5 .8 .5 .2 .1 1.0 .6 .5 .4 .5 .4
.1 .2 .2 .5 .4 .3 1.0 .2 1.1 1.4 2.2 -2.1 -1.9 .2 .1 .6 .9 .5 .1 .2 .0 .1 .4 .3 .8 1.0 .7 .9 .2
-.1 -.3 -.2 .2 .9 1.4 .8 .3 .3 1.1 .8 -2.8 -1.1 .0 .1 .2 .4 .5 .6 .3 .9 1.3 .6 .4 .7 1.2 1.4 .4 .4 .2 1.0 .5
-.1 -.5 -.8 .1 .4 .5 .3 -.7 -.6 .0 -1.0 -.2 -.2 -.4 -.2 -.1 -.1 -.8 -.8 .1 .7 .4 .5 .1 .2 .3 -.1 .1 .2 .0
.2 .0 .0 -.1 -.2 -.3 -.4 -.9 -.5 -1.2 .9 -.6 -.8 -1.2 -1.6 -.7 -.1 -.5 -.7 -.6 .3 .0 -.2 -.2 -.3 -.6 -.7 -.7 -.8 -.5 -.4 .3 .1 .5
-1.1 -1.5 -1.9 -1.2 -1.4 -1.2 -1.4 -1.1 -1.2 -1.6 -1.8 -1.3 -1.3 -1.4 -1.6 -2.1 -1.7 -1.4 -1.0 -.5 -.3 -.3 -1.1 -1.7 -1.7 -1.7 -2.2 -1.9 -2.0 -1.5 -1.4 -.9 -.5 -.9 -1.2
-2.8 -2.9 -4.4 -3.8 -3.0 -2.7 -2.8 -2.1 -2.0 -1.3 -2.4 -2.3 -2.6 -2.3 -.9 -1.3 -1.1 -.1 -1.2 -1.2 -2.0 -2.9 -.8 -1.4 -1.3 -2.4 -2.9 -2.8 -1.8 -1.4 .0 -1.3 -1.4 -2.9
-1.4 -1.9 -3.2 -3.8 -1.7 -3.0 -2.8 -1.5 1.2 .2 1.6 -1.9 -1.3 -1.0 .7 1.6

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
MAY 1996
FIGURE 26
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


.6 .1 .4 .4 .9 .8 .7 .6 .6
.4 .6 .6 .5 .1 .5 .5 .6 1.2 1.0 1.0 .7 .9 .8 .7 .8 .8 .6 .8 .6 .8 .5 .3 –.1 –.1 .0 .1 .3 .4 .4 .4
.2 .8 .7 .4 –.1 .0 –.1 –.2 –.1 .4 1.2 .9 .9 .0 .1 .1 .3 .3 .2 .1 .2 .1 –.1 –.4 –.4 –.5 –.2 .3 .5 .5 .4 .6
.1 .5 .6 .0 –.3 –.1 .0 .2 .3 .0 .2 .0 .0 .4 .6 .3 .1 .5 .3 .4 .4 .1 –.1 –.3 –.2 –.1 .2 .5 .4 .4 .5 .4 .0
.0 .4 .3 .2 –.2 .0 .2 .4 .4 .2 .4 .4 .5 .4 .2 .3 .3 .4 .6 .0 .3 –.4 –.9 –.6 –.4 –.1 .0 .4 .4 .6 .4 .0 .1
.6 .8 .9 .8 .8 .6 .4 .2 .5 .6 .7 .8 .8 .5 .8 .5 .2 .2 .1 –.1 –.1 .6 –.7 –.7 –.9 –1.3 –1.1 –.6 –.5 –.3 .0 .3 .4 1.0
.8 .9 .6 .3 .4 .4 .5 .4 .3 .4 .5 .6 .5 .4 .6 .3 .0 –.4 –1.0 –1.1 –1.6 –.8 –1.1 –.8 –.6 –.4 .0 .6 .6 .3 .3 .3 .3 .5 .8
.7 .6 .5 .6 .7 .7 .8 .8 .9 .1 1.0 1.1 1.0 1.0 1.0 .9 .9 .5 .3 .0 .0 .4 .4 .5 .2 .2 .2 .4 .7 .4 .5 .4 .4 .5 .6 .6
.6 .6 .6 .5 .5 .5 .6 .7 1.0 1.0 .2 1.1 .9 .7 .7 .6 .5 .5 .5 .7 .8 .8 .7 .3 .2 .3 .3 .5 .4 .5 .5 .4 .3 .8
.7 .7 .5 .3 .3 .3 .5 .7 .9 1.2 1.2 1.1 1.1 1.0 .6 .3 .5 .5 .6 .6 .8 .8 .3 .4 .3 .3 .5 .4 .4 .5 .5 .6 .6 .6 .7
.7 .7 .5 .3 .3 .5 .4 .3 .6 .8 1.1 1.1 1.0 .9 .5 .3 .5 .6 .5 .3 .2 .4 .2 .3 .3 .4 .6 .6 .5 .4 .7 .5 .7 .8 .8
–.1 .2 .4 .5 .5 .6 .2 .1 .2 .2 .1 .1 .1 .0 –.1 –.1 .0 .1 .2 –.1 –.7 .3 –.3 –.5 –.2 –.2 –.1 .1 .2 .1 .0 –.1 .0 .2 .0 –.2
–.2 –.2 –.3 –.2 –.4 –.1 –.3 –.2 .0 –.3 –.4 –.7 .1 –.2 –.4 –.4 –.4 .0 .0 –.3 –.1 .0 .0 –.3 –.6 –.3 –.1 .2 –.1 .1 .2 .1 –.1 –.4 .2
–.3 –.4 –.5 –.8 –.9 –.7 –1.1 –1.0 –.6 –.7 –.4 .8 –.4 –.9 –1.0 –.8 –.4 –.5 –.4 –.6 –.7 –.7 –.4 –.4 –.9 –1.0 –.7 –.4 –.5 –.4 –.2 .1 –.2 –.2 –.2 –.2
–.8 –1.2 –1.1 –.9 –1.3 –1.6 –1.8 –1.5 –1.6 –1.3 –1.2 –1.1 –1.0 –1.1 –1.2 –1.1 –1.0 –.5 –.8 –.8 –.8 –1.1 –.8 –.9 –1.0 –1.4 –1.2 –1.4 –1.6 –1.3 –1.0 –1.0 –.9 –.9 –1.2 –1.2
–.6 –.5 –.9 –1.5 –1.0 –1.0 –1.3 –1.5 –1.9 –2.2 –2.0 –1.9 –2.1 –1.0 –1.0 –1.2 –.9 –1.2 –1.0 –1.6 –1.8 –1.3 –.9 –.5 –.7 –.7 –1.0 –.8 –1.0 –.5 –.5 –.5 –.5 –.3 –.7 –1.2
–.4 .0 .2 .6 1.0 .4 .6 .2 .2 –.5 –.8 –.6 –.8 –.9 –.5 –.7 –.2 –.3 .2 .0 .3 .4 .0 .6 .8 .7 .8 –.4 –.6 .0 .7 .5 .4 –.2
.2 –.5

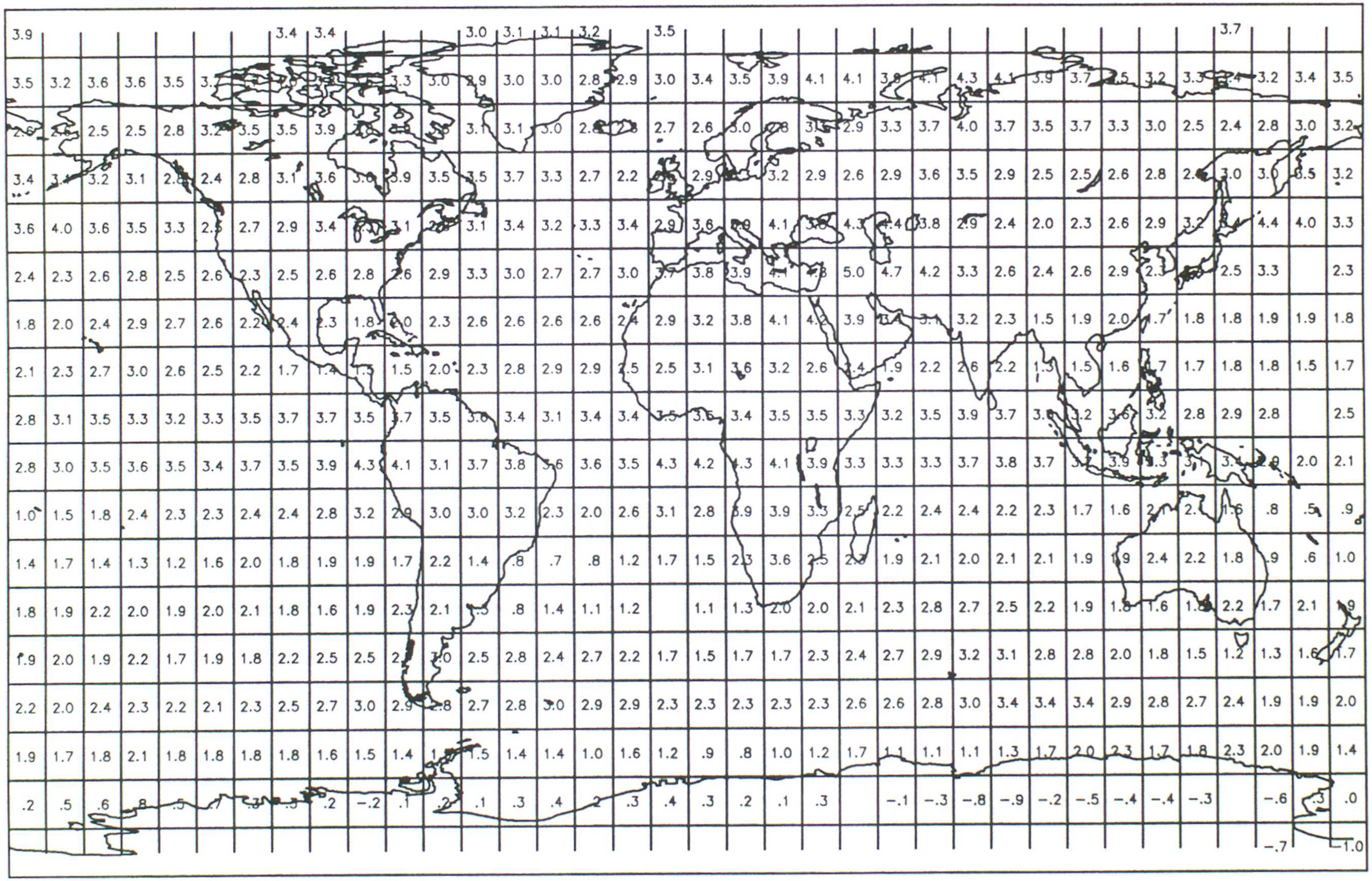
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA

MAY 1996

FIGURE 27

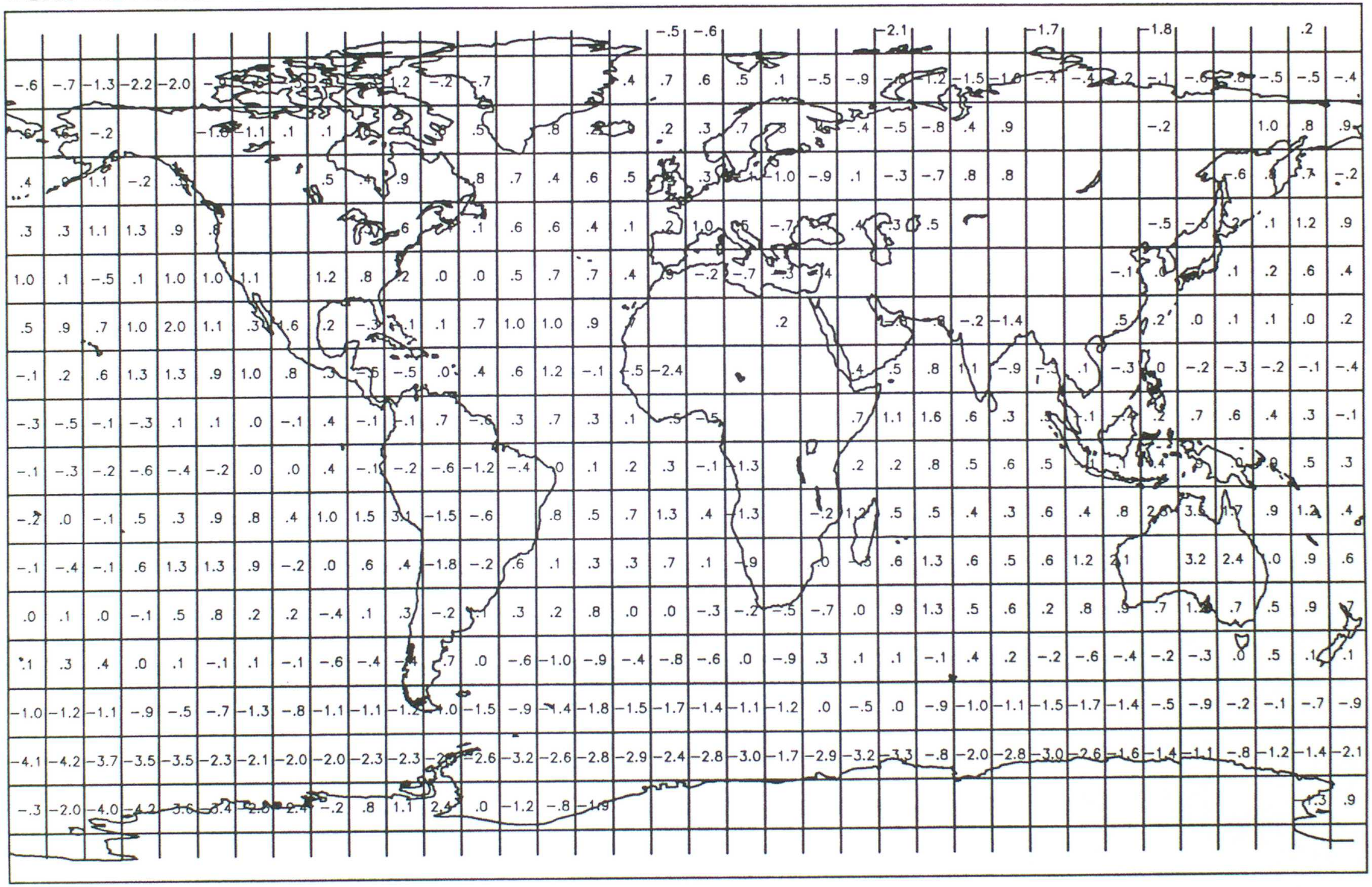
NOAA–12, USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

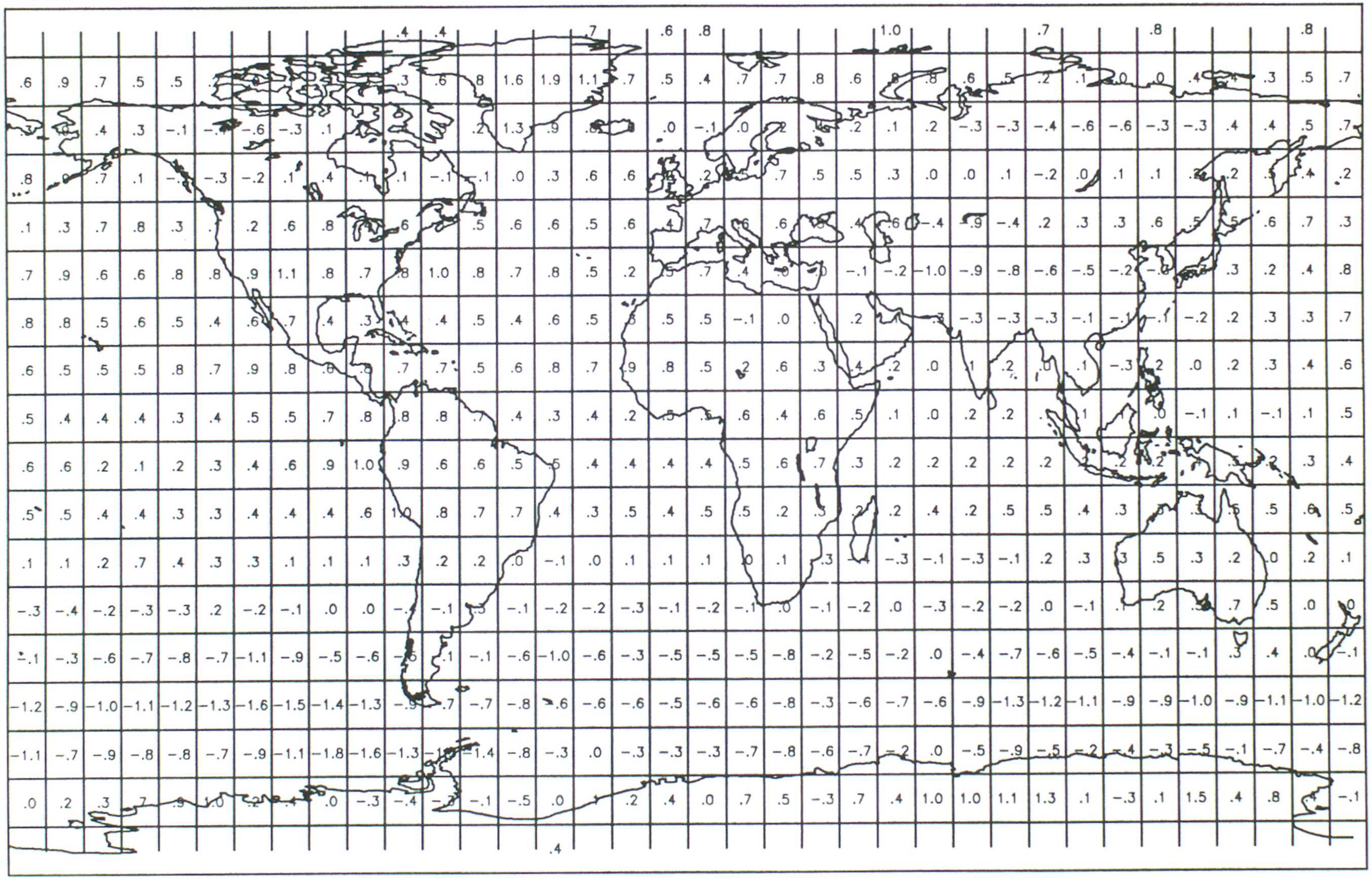

3.9 3.4 3.4 3.0 3.1 3.1 3.2 3.5 3.7
3.5 3.2 3.6 3.6 3.5 3.7 3.3 3.0 2.9 3.0 3.0 2.8 2.9 3.0 3.4 3.5 3.9 4.1 4.1 3.8 4.1 4.3 4.1 3.9 3.7 3.5 3.2 3.3 3.4 3.2 3.4 3.5
2.6 2.6 2.5 2.5 2.8 3.2 3.5 3.5 3.9 3.1 3.1 3.0 2.8 2.7 2.6 3.0 2.8 3.5 2.9 3.3 3.7 4.0 3.7 3.5 3.7 3.3 3.0 2.5 2.4 2.8 3.0 3.2
3.4 3.4 3.2 3.1 2.8 2.4 2.8 3.1 3.6 3.6 3.9 3.5 3.5 3.7 3.3 2.7 2.2 2.9 3.2 2.9 2.6 2.9 3.6 3.5 2.9 2.5 2.5 2.6 2.8 2.6 3.0 3.0 3.5 3.2
3.6 4.0 3.6 3.5 3.3 2.5 2.7 2.9 3.4 3.1 2.9 3.1 3.4 3.2 3.3 3.4 2.9 3.6 3.9 4.1 3.8 4.3 4.4 3.8 2.9 2.4 2.0 2.3 2.6 2.9 3.2 4.4 4.0 3.3
2.4 2.3 2.6 2.8 2.5 2.6 2.3 2.5 2.6 2.8 2.6 2.9 3.3 3.0 2.7 2.7 3.0 3.7 3.8 3.9 4.1 4.8 5.0 4.7 4.2 3.3 2.6 2.4 2.6 2.9 2.3 2.5 3.3 2.3
1.8 2.0 2.4 2.9 2.7 2.6 2.2 2.4 2.3 1.8 2.0 2.3 2.6 2.6 2.6 2.6 2.4 2.9 3.2 3.8 4.1 4.2 3.9 3.4 3.1 3.2 2.3 1.5 1.9 2.0 1.7 1.8 1.8 1.9 1.9 1.8
2.1 2.3 2.7 3.0 2.6 2.5 2.2 1.7 1.4 1.5 1.5 2.0 2.3 2.8 2.9 2.9 2.5 2.5 3.1 3.6 3.2 2.6 2.4 1.9 2.2 2.6 2.2 1.3 1.5 1.6 1.7 1.7 1.8 1.8 1.5 1.7
2.8 3.1 3.5 3.3 3.2 3.3 3.5 3.7 3.7 3.5 3.7 3.5 3.6 3.4 3.1 3.4 3.4 3.5 3.6 3.4 3.5 3.5 3.3 3.2 3.5 3.9 3.7 3.6 3.2 3.6 3.2 2.8 2.9 2.8 2.5
2.8 3.0 3.5 3.6 3.5 3.4 3.7 3.5 3.9 4.3 4.1 3.1 3.7 3.8 3.6 3.6 3.5 4.3 4.2 4.3 4.1 3.9 3.3 3.3 3.3 3.7 3.8 3.7 3.9 3.3 3.4 2.9 2.0 2.1
1.0 1.5 1.8 2.4 2.3 2.3 2.4 2.4 2.8 3.2 2.9 3.0 3.0 3.2 2.3 2.0 2.6 3.1 2.8 3.9 3.9 3.3 2.5 2.2 2.4 2.4 2.2 2.3 1.7 1.6 2.2 2.1 1.6 .8 .5 .9
1.4 1.7 1.4 1.3 1.2 1.6 2.0 1.8 1.9 1.9 1.7 2.2 1.4 .8 .7 .8 1.2 1.7 1.5 2.3 3.6 2.5 2.3 1.9 2.1 2.0 2.1 2.1 1.9 1.9 2.4 2.2 1.8 .9 .6 1.0
1.8 1.9 2.2 2.0 1.9 2.0 2.1 1.8 1.6 1.9 2.3 2.1 1.3 .8 1.4 1.1 1.2 1.1 1.3 2.0 2.0 2.1 2.3 2.8 2.7 2.5 2.2 1.9 1.8 1.6 1.8 2.2 1.7 2.1 .9
1.9 2.0 1.9 2.2 1.7 1.9 1.8 2.2 2.5 2.5 2.0 3.0 2.5 2.8 2.4 2.7 2.2 1.7 1.5 1.7 1.7 2.3 2.4 2.7 2.9 3.2 3.1 2.8 2.8 2.0 1.8 1.5 1.2 1.3 1.6 1.7
2.2 2.0 2.4 2.3 2.2 2.1 2.3 2.5 2.7 3.0 2.9 2.8 2.7 2.8 3.0 2.9 2.9 2.3 2.3 2.3 2.3 2.3 2.6 2.6 2.8 3.0 3.4 3.4 3.4 2.9 2.8 2.7 2.4 1.9 1.9 2.0
1.9 1.7 1.8 2.1 1.8 1.8 1.8 1.8 1.6 1.5 1.4 1.5 1.4 1.4 1.0 1.6 1.2 .9 .8 1.0 1.2 1.7 1.1 1.1 1.1 1.3 1.7 2.0 2.3 1.7 1.8 2.3 2.0 1.9 1.4
.2 .5 .6 .8 .5 .7 .3 .3 .2 –.2 .1 .2 .1 .3 .4 .2 .3 .4 .3 .2 .1 .3 –.1 –.3 –.8 –.9 –.2 –.5 –.4 –.4 –.3 –.6 .3 .0
–.7 –1.0

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
MAY 1996
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28


-.5 -.6 -2.1 -1.7 -1.8 .2
-.6 -.7 -1.3 -2.2 -2.0 1.2 -.2 .7 .4 .7 .6 .5 .1 -.5 -.9 1.2 -1.5 -.4 -.4 .2 -.1 -.6 -.5 -.5 -.4
-.2 -1.1 .1 .1 .5 .8 .2 .3 .7 -.4 -.5 -.8 .4 .9 -.2 1.0 .8 .9
.4 1.1 -.2 .5 .9 .8 .7 .4 .6 .5 .3 -1.0 -.9 .1 -.3 -.7 .8 .8 -.6 .7 -.2
.3 .3 1.1 1.3 .9 .6 .1 .6 .6 .4 .1 .2 1.0 -.7 .4 .3 .5 -.5 .1 1.2 .9
1.0 .1 -.5 .1 1.0 1.0 1.1 1.2 .8 .2 .0 .0 .5 .7 .7 .4 -.2 -.7 -.3 .4 -.1 .1 .2 .6 .4
.5 .9 .7 1.0 2.0 1.1 .3 .6 .2 -.3 .1 .1 .7 1.0 1.0 .9 .2 -.2 -1.4 .5 .2 .0 .1 .1 .0 .2
-.1 .2 .6 1.3 1.3 .9 1.0 .8 .3 .5 -.5 .0 .4 .6 1.2 -.1 .5 -2.4 .4 .5 .8 1.1 -.9 .1 -.3 .0 -.2 -.3 -.2 -.1 -.4
-.3 -.5 -.1 -.3 .1 .1 .0 -.1 .4 -.1 .1 .7 -.6 .3 .7 .3 .1 -.5 .5 .7 1.1 1.6 .6 .3 .1 .2 .7 .6 .4 .3 -.1
-.1 -.3 -.2 -.6 -.4 -.2 .0 .0 .4 -.1 -.2 -.6 -1.2 -.4 .0 .1 .2 .3 -.1 1.3 .2 .2 .8 .5 .6 .5 .4 .9 .5 .3
-.2 .0 -.1 .5 .3 .9 .8 .4 1.0 1.5 3.1 -1.5 -.6 .8 .5 .7 1.3 .4 1.3 -.2 1.2 .5 .5 .4 .3 .6 .4 .8 2.8 3.5 1.7 .9 1.2 .4
-.1 -.4 -.1 .6 1.3 1.3 .9 -.2 .0 .6 .4 -1.8 -.2 .6 .1 .3 .3 .7 .1 -.9 .0 .3 .6 1.3 .6 .5 .6 1.2 2.1 3.2 2.4 .0 .9 .6
.0 .1 .0 -.1 .5 .8 .2 .2 -.4 .1 .3 -.2 .1 .3 .2 .8 .0 .0 -.3 -.2 -.5 -.7 .0 .9 1.3 .5 .6 .2 .8 .9 .7 1.2 .7 .5 .9 .7
.1 .3 .4 .0 .1 -.1 .1 -.1 -.6 -.4 -.4 .7 .0 -.6 -1.0 -.9 -.4 -.8 -.6 .0 -.9 .3 .1 .1 -.1 .4 .2 -.2 -.6 -.4 -.2 -.3 .0 .5 .1 .1
-1.0 -1.2 -1.1 -.9 -.5 -.7 -1.3 -.8 -1.1 -1.1 -1.2 -1.0 -1.5 -.9 -1.4 -1.8 -1.5 -1.7 -1.4 -1.1 -1.2 .0 -.5 .0 -.9 -1.0 -1.1 -1.5 -1.7 -1.4 -.5 -.9 -.2 -.1 -.7 -.9
-4.1 -4.2 -3.7 -3.5 -3.5 -2.3 -2.1 -2.0 -2.0 -2.3 -2.3 -2.6 -3.2 -2.6 -2.8 -2.9 -2.4 -2.8 -3.0 -1.7 -2.9 -3.2 -3.3 -.8 -2.0 -2.8 -3.0 -2.6 -1.6 -1.4 -1.1 -.8 -1.2 -1.4 -2.1
-.3 -2.0 -4.0 -4.2 -3.6 -3.4 -2.8 -2.4 -.2 .8 1.1 2.4 .0 -1.2 -.8 -1.9 1.3 .9

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
MAY 1996
FIGURE 29
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


.4 .4 .7 .6 .8 1.0 .7 .8 .8
.6 .9 .7 .5 .5 .3 .6 .8 1.6 1.9 1.1 .7 .5 .4 .7 .7 .8 .6 .8 .8 .6 .5 .2 .1 .0 .0 .4 .3 .5 .7
.3 .0 .4 .3 -.1 -.4 -.6 -.3 .1 .2 1.3 .9 .8 .0 -.1 .0 .2 .5 .2 .1 .2 -.3 -.3 -.4 -.6 -.6 -.3 -.3 .4 .4 .5 .7
.8 .0 .7 .1 -.1 -.3 -.2 .1 .4 .1 .1 -.1 -.1 .0 .3 .6 .6 .2 .5 .7 .5 .5 .3 .0 .0 .1 -.2 .0 .1 .1 .2 .2 .5 .4 .2
.1 .3 .7 .8 .3 .1 .2 .6 .8 .4 .6 .5 .6 .6 .5 .6 .4 .7 .6 .6 .5 .4 .6 -.4 .9 -.4 .2 .3 .3 .6 .5 .5 .6 .7 .3
.7 .9 .6 .6 .8 .8 .9 1.1 .8 .7 .8 1.0 .8 .7 .8 .5 .2 .5 .7 .4 .0 .0 -.1 -.2 -1.0 -.9 -.8 -.6 -.5 -.2 -.0 .3 .2 .4 .8
.8 .8 .5 .6 .5 .4 .6 .7 .4 .3 .4 .4 .5 .4 .6 .5 .3 .5 .5 -.1 .0 .1 .2 .3 -.3 -.3 -.3 -.1 -.1 -.1 -.2 .2 .3 .3 .7
.6 .5 .5 .5 .8 .7 .9 .8 .6 .6 .7 .7 .5 .6 .8 .7 .9 .8 .5 .2 .6 .3 .4 .2 .0 .1 .2 .0 .1 -.3 .2 .0 .2 .3 .4 .6
.5 .4 .4 .4 .3 .4 .5 .5 .7 .8 .8 .8 .7 .4 .3 .4 .2 .5 .5 .6 .4 .6 .5 .1 .0 .2 .2 .1 .1 .0 -.1 .1 -.1 .1 .5
.6 .6 .2 .1 .2 .3 .4 .6 .9 1.0 .9 .6 .6 .5 .5 .4 .4 .4 .4 .5 .6 .7 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .4
.5 .5 .4 .4 .3 .3 .4 .4 .4 .6 1.0 .8 .7 .7 .4 .3 .5 .4 .5 .5 .2 .3 .2 .2 .4 .2 .5 .5 .4 .3 .3 .3 .5 .5 .6 .5
.1 .1 .2 .7 .4 .3 .3 .1 .1 .1 .3 .2 .2 .0 -.1 .0 .1 .1 .1 .0 .1 .3 -.4 -.3 -.1 -.3 -.1 .2 .3 .3 .5 .3 .2 .0 .2 .1
-.3 -.4 -.2 -.3 -.3 .2 -.2 -.1 .0 .0 -.4 -.1 .3 -.1 -.2 -.2 -.3 -.1 -.2 -.1 .0 -.1 -.2 .0 -.3 -.2 -.2 .0 -.1 .1 .2 .3 .7 .5 .0 .0
-.1 -.3 -.6 -.7 -.8 -.7 -1.1 -.9 -.5 -.6 -.6 .1 -.1 -.6 -1.0 -.6 -.3 -.5 -.5 -.5 -.8 -.2 -.5 -.2 .0 -.4 -.7 -.6 -.5 -.4 -.1 -.1 .3 .4 .0 -.1
-1.2 -.9 -1.0 -1.1 -1.2 -1.3 -1.6 -1.5 -1.4 -1.3 -.9 -.7 -.7 -.8 -.6 -.6 -.6 -.5 -.6 -.6 -.8 -.3 -.6 -.7 -.6 -.9 -1.3 -1.2 -1.1 -.9 -.9 -1.0 -.9 -1.1 -1.0 -1.2
-1.1 -.7 -.9 -.8 -.8 -.7 -.9 -1.1 -1.8 -1.6 -1.3 -1.3 -1.4 -.8 -.3 .0 -.3 -.3 -.3 -.7 -.8 -.6 -.7 -.2 .0 -.5 -.9 -.5 -.2 -.4 -.3 -.5 -.1 -.7 -.4 -.8
.0 .2 .3 .7 .9 1.0 .2 .4 .0 -.3 -.4 -.3 -.1 -.5 .0 .1 .2 .4 .0 .7 .5 -.3 .7 .4 1.0 1.0 1.1 1.3 .1 -.3 .1 1.5 .4 .8 .4 -.1
.4

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
FIGURE 30
MAY 1996
NOAA-14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

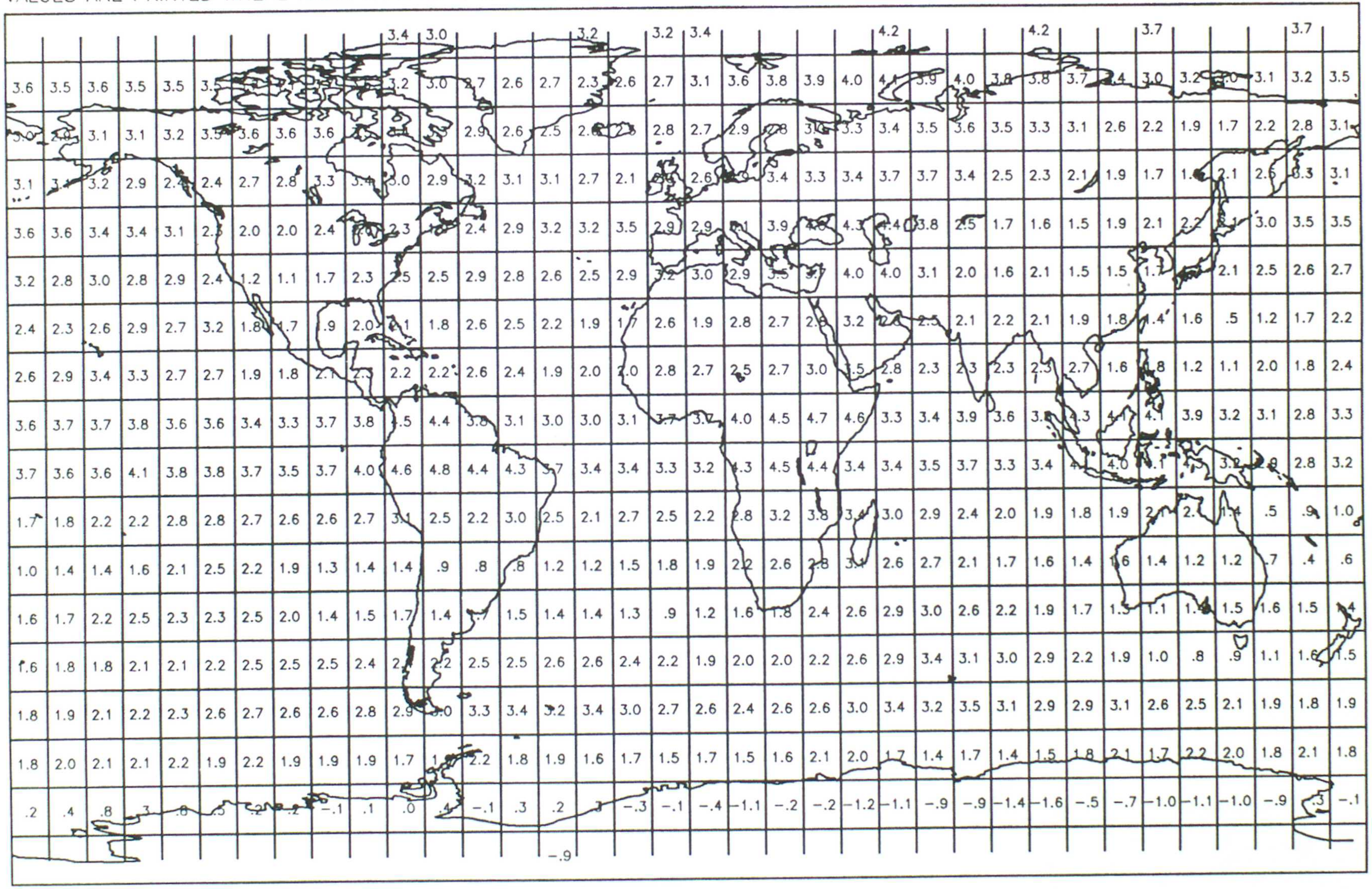

3.4 3.0 3.2 3.2 3.4 4.2 4.2 3.7 3.7
3.6 3.5 3.6 3.5 3.5 3.5 3.2 3.0 2.7 2.6 2.7 2.3 2.6 2.7 3.1 3.6 3.8 3.9 4.0 4.1 3.9 4.0 3.8 3.8 3.7 3.4 3.0 3.2 3.0 3.1 3.2 3.5
3.0 2.9 3.1 3.1 3.2 3.5 3.6 3.6 3.6 2.9 2.6 2.5 2.6 2.8 2.8 2.7 2.9 2.8 3.0 3.3 3.4 3.5 3.6 3.5 3.3 3.1 2.6 2.2 1.9 1.7 2.2 2.8 3.1
3.1 3.1 3.2 2.9 2.4 2.4 2.7 2.8 3.3 3.4 3.0 2.9 3.2 3.1 3.1 2.7 2.1 2.6 2.9 3.4 3.3 3.4 3.7 3.7 3.4 2.5 2.3 2.1 1.9 1.7 1.6 2.1 2.6 3.3 3.1
3.6 3.6 3.4 3.4 3.1 2.3 2.0 2.0 2.4 2.0 2.3 2.4 2.9 3.2 3.2 3.5 2.9 2.9 3.1 3.9 4.0 4.3 4.4 3.8 2.5 1.7 1.6 1.5 1.9 2.1 2.2 2.1 3.0 3.5 3.5
3.2 2.8 3.0 2.8 2.9 2.4 1.2 1.1 1.7 2.3 2.5 2.5 2.9 2.8 2.6 2.5 2.9 3.2 3.0 2.9 3.5 3.7 4.0 4.0 3.1 2.0 1.6 2.1 1.5 1.5 1.7 2.1 2.5 2.6 2.7
2.4 2.3 2.6 2.9 2.7 3.2 1.8 1.7 .9 2.0 2.1 1.8 2.6 2.5 2.2 1.9 1.7 2.6 1.9 2.8 2.7 2.8 3.2 2.6 2.5 2.1 2.2 2.1 1.9 1.8 1.4 1.6 .5 1.2 1.7 2.2
2.6 2.9 3.4 3.3 2.7 2.7 1.9 1.8 2.1 2.3 2.2 2.2 2.6 2.4 1.9 2.0 2.0 2.8 2.7 2.5 2.7 3.0 1.5 2.8 2.3 2.3 2.3 2.3 2.7 1.6 1.8 1.2 1.1 2.0 1.8 2.4
3.6 3.7 3.7 3.8 3.6 3.6 3.4 3.3 3.7 3.8 4.5 4.4 3.8 3.1 3.0 3.0 3.1 3.7 3.7 4.0 4.5 4.7 4.6 3.3 3.4 3.9 3.6 3.8 4.3 4.1 4.1 3.9 3.2 3.1 2.8 3.3
3.7 3.6 3.6 4.1 3.8 3.8 3.7 3.5 3.7 4.0 4.6 4.8 4.4 4.3 3.7 3.4 3.4 3.3 3.2 4.3 4.5 4.4 3.4 3.4 3.5 3.7 3.3 3.4 4.0 4.1 4.3 3.2 2.9 2.8 3.2
1.7 1.8 2.2 2.2 2.8 2.8 2.7 2.6 2.6 2.7 3.1 2.5 2.2 3.0 2.5 2.1 2.7 2.5 2.2 2.8 3.2 3.8 3.4 3.0 2.9 2.4 2.0 1.9 1.8 1.9 2.1 1.4 .5 .9 1.0
1.0 1.4 1.4 1.6 2.1 2.5 2.2 1.9 1.3 1.4 1.4 .9 .8 .8 1.2 1.2 1.5 1.8 1.9 2.2 2.6 2.8 3.1 2.6 2.7 2.1 1.7 1.6 1.4 1.6 1.4 1.2 1.2 .7 .4 .6
1.6 1.7 2.2 2.5 2.3 2.3 2.5 2.0 1.4 1.5 1.7 1.4 .7 1.5 1.4 1.4 1.3 .9 1.2 1.6 1.8 2.4 2.6 2.9 3.0 2.6 2.2 1.9 1.7 1.5 1.1 1.4 1.5 1.6 1.5 1.4
1.6 1.8 1.8 2.1 2.1 2.2 2.5 2.5 2.5 2.4 2.4 2.2 2.5 2.5 2.6 2.6 2.4 2.2 1.9 2.0 2.0 2.2 2.6 2.9 3.4 3.1 3.0 2.9 2.2 1.9 1.0 .8 .9 1.1 1.6 1.5
1.8 1.9 2.1 2.2 2.3 2.6 2.7 2.6 2.6 2.8 2.9 3.0 3.3 3.4 3.2 3.4 3.0 2.7 2.6 2.4 2.6 2.6 3.0 3.4 3.2 3.5 3.1 2.9 2.9 3.1 2.6 2.5 2.1 1.9 1.8 1.9
1.8 2.0 2.1 2.1 2.2 1.9 2.2 1.9 1.9 1.9 1.7 2.2 1.8 1.9 1.6 1.7 1.5 1.7 1.5 1.6 2.1 2.0 1.7 1.4 1.7 1.4 1.5 1.8 2.1 1.7 2.2 2.0 1.8 2.1 1.8
.2 .4 .8 .3 .8 .5 .2 .2 -.1 .1 .0 .4 -.1 .3 .2 .3 -.3 -.1 -.4 -1.1 -.2 -.2 -1.2 -1.1 -.9 -.9 -1.4 -1.6 -.5 -.7 -1.0 -1.1 -1.0 -.9 .3 -.1
-.9

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25565	54.1	-34.0	ALL	MSLP	SUR	497	0	0	1.9	-0.5	2.0
29605	28.3	-57.5	ALL	MSLP	SUR	19	0	0	1.0	-0.8	1.3
39605	34.1	-49.0	ALL	MSLP	SUR	17	0	0	0.8	-0.7	1.1
40503	28.2	-50.9	ALL	MSLP	SUR	7	0	0	0.7	0.6	1.0
40602	27.6	-23.7	ALL	MSLP	SUR	3	0	0	1.0	-0.7	1.2
40603	21.8	-23.6	ALL	MSLP	SUR	1	0	0	0.0	-0.2	0.2
40702	22.8	-25.9	ALL	MSLP	SUR	7	0	0	0.7	0.0	0.7
40704	27.5	-63.8	ALL	MSLP	SUR	5	0	0	4.1	0.5	4.1
40705	28.7	-24.3	ALL	MSLP	SUR	1	0	0	0.0	-2.3	2.3
40803	13.1	-34.5	ALL	MSLP	SUR	2	0	0	0.4	-0.1	0.5
40804	26.8	-23.8	ALL	MSLP	SUR	2	0	0	0.3	-1.2	1.3
40805	26.8	-24.9	ALL	MSLP	SUR	7	0	0	0.8	-1.4	1.6
40806	41.7	-14.1	ALL	MSLP	SUR	2	0	0	0.3	0.0	0.3
40906	43.9	-11.0	ALL	MSLP	SUR	1	0	0	0.0	-1.2	1.2
41526	34.8	-56.7	ALL	MSLP	SUR	225	0	0	0.9	0.0	0.9
41585	35.0	-44.3	ALL	MSLP	SUR	273	0	0	0.8	-0.2	0.9
44549	57.9	-46.7	ALL	MSLP	SUR	853	1	0	1.2	-0.1	1.2
44613	44.2	-11.8	ALL	MSLP	SUR	1168	1	0	0.9	-0.3	0.9
44616	60.8	-22.6	ALL	MSLP	SUR	1748	5	0	1.0	0.5	1.1
44692	50.0	-56.1	ALL	MSLP	SUR	16	0	0	1.0	-0.3	1.0
44727	42.2	-17.7	ALL	MSLP	SUR	1172	0	0	0.9	-0.5	1.0
44728	58.8	-29.0	ALL	MSLP	SUR	1541	6	0	1.0	0.1	1.0
44760	22.9	-36.6	ALL	MSLP	SUR	292	0	0	0.8	-0.6	1.0
44763	56.3	-35.6	ALL	MSLP	SUR	1674	2	0	1.6	-0.2	1.6
44765	59.8	-27.2	ALL	MSLP	SUR	1530	4	0	1.1	-0.4	1.1
44767	55.4	-37.5	ALL	MSLP	SUR	1559	5	0	1.6	-0.2	1.6
44768	60.5	-32.0	ALL	MSLP	SUR	1789	2	0	1.2	-0.1	1.2
44769	54.7	-27.3	ALL	MSLP	SUR	1664	4	0	1.1	-0.1	1.1
44770	23.1	-44.8	ALL	MSLP	SUR	490	2	0	1.1	-0.2	1.1
44771	50.5	-41.9	ALL	MSLP	SUR	1348	3	0	1.4	-0.5	1.5
44772	53.8	-32.9	ALL	MSLP	SUR	1487	0	0	1.3	-0.2	1.3
44773	53.3	-18.9	ALL	MSLP	SUR	1159	3	0	1.2	-0.2	1.2
44774	49.6	-40.0	ALL	MSLP	SUR	1371	3	0	2.1	-0.8	2.3
44778	53.5	-43.6	ALL	MSLP	SUR	261	3	1	1.3	-0.1	1.3
44911	52.3	-48.8	ALL	MSLP	SUR	127	0	0	1.3	-0.2	1.3
49605	34.9	-44.2	ALL	MSLP	SUR	24	0	0	0.9	-0.6	1.1
51632	44.7	-63.6	ALL	MSLP	SUR	6	0	0	0.6	-6.0	6.0
61521	35.7	-5.7	ALL	MSLP	SUR	703	1	0	1.2	-0.3	1.2
62501	51.3	-17.5	ALL	MSLP	SUR	613	0	0	1.1	0.0	1.1
62503	45.4	-16.4	ALL	MSLP	SUR	569	0	0	1.0	-0.2	1.0
62504	46.3	-9.1	ALL	MSLP	SUR	557	0	0	1.0	0.1	1.0
62505	48.5	-21.3	ALL	MSLP	SUR	550	0	0	1.3	0.0	1.3
62506	49.4	-18.3	ALL	MSLP	SUR	450	0	0	1.8	-0.3	1.8
62507	43.6	-21.4	ALL	MSLP	SUR	19	0	0	5.8	-0.8	5.8
62508	49.0	-26.0	ALL	MSLP	SUR	635	0	0	1.1	0.1	1.1
62510	44.9	-16.1	ALL	MSLP	SUR	566	0	0	0.9	0.3	1.0
62512	41.9	-19.5	ALL	MSLP	SUR	540	0	0	1.2	0.4	1.3
62694	58.2	-41.4	ALL	MSLP	SUR	577	33	6	3.3	-0.2	3.3
62910	57.4	-34.6	ALL	MSLP	SUR	143	0	0	1.1	0.0	1.1
63665	62.2	-42.0	ALL	MSLP	SUR	474	1	0	1.7	0.1	1.7
64934	65.1	-30.4	ALL	MSLP	SUR	112	0	0	1.0	0.1	1.0
65594	64.1	-31.8	ALL	MSLP	SUR	1865	1	0	1.0	-0.2	1.0
65595	56.8	-43.4	ALL	MSLP	SUR	1393	1	0	1.2	-0.3	1.3
65598	59.3	-49.3	ALL	MSLP	SUR	382	71	19	4.0	-0.4	4.0
71542	44.7	-63.6	ALL	MSLP	SUR	46	38	83	9.3	-4.2	10.2
WIND SPEED											
29605	28.3	-57.5	ALL	SPEED	SUR	16	0	0	1.7	1.9	2.5
39605	34.1	-49.0	ALL	SPEED	SUR	17	0	0	2.0	1.8	2.7
40503	28.2	-50.9	ALL	SPEED	SUR	6	0	0	1.5	-0.3	1.6
40602	27.6	-23.7	ALL	SPEED	SUR	3	0	0	5.7	2.7	6.3

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
40603	21.8	-23.6	ALL	SPEED	SUR	1	0	0	0.0	0.8	0.8
40702	22.8	-25.9	ALL	SPEED	SUR	7	0	0	2.7	1.8	3.3
40704	27.5	-63.8	ALL	SPEED	SUR	5	0	0	1.9	1.1	2.2
40705	28.7	-24.3	ALL	SPEED	SUR	1	0	0	0.0	4.4	4.4
40803	13.1	-34.5	ALL	SPEED	SUR	2	0	0	0.6	3.8	3.8
40804	26.8	-23.8	ALL	SPEED	SUR	2	0	0	0.2	2.7	2.7
40805	26.8	-24.9	ALL	SPEED	SUR	7	0	0	2.5	3.8	4.5
40806	41.7	-14.1	ALL	SPEED	SUR	2	0	0	0.2	-0.8	0.8
40906	43.9	-11.0	ALL	SPEED	SUR	1	0	0	0.0	3.9	3.9
41526	34.8	-56.7	ALL	SPEED	SUR	209	0	0	1.6	-2.6	3.0
44613	44.2	-11.8	ALL	SPEED	SUR	1058	1	0	2.0	-2.3	3.1
49605	34.9	-44.2	ALL	SPEED	SUR	24	0	0	3.2	-0.5	3.2
WIND DIRECTION											
29605	28.3	-57.5	ALL	DIRN.	SUR	16	0	0	53.2	13.3	54.8
39605	34.1	-49.0	ALL	DIRN.	SUR	14	0	0	20.9	-0.7	20.9
40503	28.2	-50.9	ALL	DIRN.	SUR	3	0	0	11.7	-10.6	15.8
40602	27.6	-23.7	ALL	DIRN.	SUR	2	0	0	10.8	-10.6	15.1
40702	22.8	-25.9	ALL	DIRN.	SUR	7	0	0	29.5	-2.5	29.6
40704	27.5	-63.8	ALL	DIRN.	SUR	4	0	0	49.3	23.2	54.4
40705	28.7	-24.3	ALL	DIRN.	SUR	1	0	0	0.0	13.8	13.8
40803	13.1	-34.5	ALL	DIRN.	SUR	2	0	0	1.8	-2.0	2.7
40804	26.8	-23.8	ALL	DIRN.	SUR	1	0	0	0.0	-0.1	0.1
40805	26.8	-24.9	ALL	DIRN.	SUR	7	0	0	13.7	4.0	14.2
40806	41.7	-14.1	ALL	DIRN.	SUR	2	0	0	36.4	52.1	63.6
40906	43.9	-11.0	ALL	DIRN.	SUR	1	0	0	0.0	33.4	33.4
41526	34.8	-56.7	ALL	DIRN.	SUR	159	0	0	21.1	1.2	21.1
44613	44.2	-11.8	ALL	DIRN.	SUR	837	1	0	18.5	-2.8	18.7
49605	34.9	-44.2	ALL	DIRN.	SUR	21	0	0	20.0	-3.3	20.3

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures:
Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3384	0	1	1.7	0.0	3409	0	2	0	7.3	0.7
AAN	64	0	0	1.8	-0.2	60	0	3	0	10.2	0.5
ACA	891	0	1	1.7	0.1	921	0	2	0	6.2	0.4
AEA	387	0	100	1.9	0.6	383	0	3	0	8.4	1.6
AEL	304	0	4	1.8	-0.4	314	0	5	0	8.3	0.4
AFL	184	1	100	3.4	1.6	183	1	13	2	11.0	0.4
AFR	829	0	4	1.8	-0.2	851	0	5	0	7.8	0.8
AIC	33	3	3	2.8	1.5	33	0	0	0	8.2	0.5
AIH	133	2	2	1.4	0.0	133	0	2	0	7.4	1.2
AMX	124	0	3	2.1	0.0	130	0	4	0	8.6	1.1
AMY	35	0	0	1.5	-0.9	35	3	3	0	8.5	2.7
ANZ	193	0	1	1.7	-0.8	196	0	5	1	8.4	-0.4
AOM	218	1	3	1.6	0.8	225	1	4	0	8.4	1.3
AUA	97	0	0	1.8	-0.7	97	0	0	0	7.0	1.4
AVA	161	1	3	2.3	-0.2	165	1	3	0	8.5	1.1
AZA	410	1	3	2.3	0.4	418	0	3	0	7.4	1.2
BAL	330	1	21	1.8	0.0	345	0	22	0	8.1	0.8
BAW	1590	0	3	1.8	0.0	1613	0	3	0	7.5	0.9
BBB	31	0	0	1.4	-0.4	31	0	3	0	9.3	2.5
BWA	96	0	3	2.5	0.9	100	0	4	0	9.5	2.1
CDN	781	0	1	1.8	0.7	789	0	2	1	6.5	0.8
CFG	468	0	1	1.9	-1.1	477	0	1	0	7.8	0.7
CKT	67	0	3	1.6	0.5	66	0	5	0	7.8	-1.0
CLI	113	0	1	1.6	-0.4	116	0	2	0	8.1	1.1
CLX	107	0	2	1.8	-0.3	107	0	3	0	7.2	0.7
CMM	184	0	1	1.5	0.0	188	0	5	3	8.4	0.8
COA	418	1	1	2.0	0.8	426	0	2	0	8.2	0.9
CRL	119	0	0	1.4	0.2	123	0	2	0	7.9	1.0
CSA	24	4	0	1.3	-0.1	27	0	0	0	5.0	-0.5
CTM	32	0	13	1.9	0.3	31	0	13	0	6.0	0.5
CUB	144	2	100	2.4	1.4	151	1	100	0	14.3	0.9
DAF	20	0	0	2.8	0.9	20	0	0	0	5.8	2.7
DAL	2423	0	1	1.8	0.4	2441	0	2	0	7.9	0.6
DHL	408	1	100	3.8	-1.6	414	0	4	0	8.6	1.1
DLH	2292	0	7	2.2	0.7	2307	0	9	2	7.0	0.8
DOA	77	0	13	2.0	0.1	75	0	13	0	9.1	0.8
ELY	129	1	7	2.0	-0.3	137	0	9	0	8.3	0.8
EWW	145	1	66	3.3	-0.1	143	1	100	0	16.6	2.1
FDX	610	1	1	1.5	0.6	619	0	3	0	7.4	0.8
FIN	339	0	2	2.0	0.5	340	0	2	1	7.1	1.1
GAF	171	0	1	1.8	0.7	171	0	2	1	7.4	1.1
GFA	27	0	4	2.1	0.2	28	0	0	0	5.8	-0.3
GTI	110	0	0	1.9	-0.2	111	0	0	0	7.6	1.6
HLA	20	0	5	1.3	0.0	20	0	10	0	10.4	2.5
HLF	117	0	2	1.8	-0.8	118	0	4	0	9.5	2.4
IBE	733	2	20	2.3	-0.1	739	0	21	0	9.8	1.3
ICE	566	1	1	1.6	-0.3	559	0	2	1	6.5	0.7
KLM	1810	0	1	1.9	0.5	1840	0	2	0	7.6	0.6
LDA	133	1	10	2.3	-0.9	136	0	10	0	8.9	0.6
LDI	122	0	20	2.2	-1.3	127	0	24	0	9.2	0.2
LIB	131	1	2	1.7	0.8	130	1	5	0	8.0	0.3
LOT	285	1	2	2.1	-0.7	283	0	3	0	8.2	0.2
LTU	509	0	3	1.7	0.1	508	0	4	0	8.0	0.6
MPH	520	0	1	1.9	-0.5	526	0	1	0	7.6	0.8
NWA	2434	1	2	2.3	1.0	2497	0	3	1	7.8	0.5
OAL	37	3	3	2.9	2.2	38	0	3	0	10.6	1.6
RAF	20	0	0	1.0	0.6	20	0	0	0	7.3	2.0
RCH	154	1	16	2.9	1.0	155	1	18	0	10.1	0.4
RJA	97	1	3	2.2	0.7	97	0	1	0	7.5	1.1

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RRR	199	2	23	2.6	-0.4	200	0	26	0	11.1	1.8
SAB	119	0	0	1.7	0.1	119	0	2	0	6.7	0.8
SAS	944	0	0	1.7	0.0	936	0	2	1	7.3	0.2
SIA	105	0	5	2.1	-0.7	109	0	5	1	8.1	0.5
SLR	59	0	31	2.2	-0.9	62	0	31	0	7.7	0.9
SPP	28	0	14	1.2	0.1	25	0	16	0	5.9	0.3
SVA	122	0	2	1.9	0.7	127	0	3	1	9.8	1.2
SWR	206	0	2	2.1	0.6	209	0	3	0	7.9	1.3
TAP	355	1	4	1.8	-0.4	351	0	4	0	9.2	1.0
TEJ	71	0	18	1.7	0.1	76	0	24	0	11.6	-1.1
TOW	67	0	4	1.7	-0.2	68	0	4	0	7.6	-0.8
TSC	107	0	6	2.3	0.3	109	0	5	0	6.1	1.0
TWA	1276	0	2	1.8	0.0	1281	0	3	0	8.0	1.1
UAL	1706	0	1	2.0	-0.9	1724	0	1	0	7.0	0.6
ULE	129	0	2	1.7	0.4	132	1	4	0	8.7	0.3
UPS	630	1	16	1.5	-0.1	636	0	16	0	7.7	0.3
USA	91	0	0	1.8	-0.4	93	0	0	0	7.1	0.5
VIA	84	2	7	2.3	0.8	87	1	6	0	7.6	0.0
VIR	223	0	2	1.8	0.1	226	0	6	0	9.0	1.6
WOA	47	0	6	1.7	0.9	47	0	9	2	5.0	0.1
BA	8209	0	15	1.3	0.5	8209	0	15	0	6.5	0.9
KL	4137	0	15	1.3	0.5	4134	0	15	0	6.8	1.2
LH	208	0	19	1.1	0.3	208	0	19	0	6.6	1.4
MF	24	0	0	1.5	-0.9	25	0	0	0	11.6	4.0
M	69	0	100	3.2	1.2	70	0	100	0	12.1	1.9
N	306	1	5	2.8	0.9	330	0	4	0	8.6	0.6

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	25	0	10.5	13.6	8.7
DBBH	12	Z	100	21	0	20.9	32.3	24.7
EHOA	00	Z	100	1	0	0.0	3.0	-3.0
EHOA	12	Z	100	19	0	15.9	23.1	16.8
FNOR	00	Z	100	13	0	19.3	21.0	8.2
FNOR	12	Z	100	11	0	15.3	15.4	-0.7
FNOU	00	Z	100	11	0	19.0	23.4	13.6
FNOU	12	Z	100	9	0	8.3	8.4	0.7
FNPH	00	Z	100	12	0	29.4	30.6	-8.7
FNPH	12	Z	100	14	0	21.1	26.4	-15.9
FNRS	00	Z	100	9	0	15.6	17.4	-7.7
FNRS	12	Z	100	6	0	13.8	18.4	-12.2
GACA	00	Z	100	25	0	14.1	18.3	11.6
GACA	12	Z	100	23	0	10.8	12.3	6.0
JBOA	00	Z	100	1	0	0.0	19.0	19.0
JCCX	00	Z	100	1	0	0.0	21.0	21.0
JDWX	00	Z	100	1	0	0.0	5.0	5.0
JGQH	00	Z	100	1	0	0.0	8.0	-8.0
JIVB	00	Z	100	1	0	0.0	17.0	17.0
LDWR	00	Z	100	28	0	10.9	15.6	11.1
LDWR	12	Z	100	27	0	12.8	12.8	0.8
OXVH2	00	Z	100	9	0	18.9	20.0	6.4
OXVH2	12	Z	100	8	0	14.2	20.5	14.9
OXYH2	00	Z	100	15	0	60.3	63.4	19.6
OXYH2	12	Z	100	15	0	22.7	23.0	4.1
SHIPAF	00	Z	100	1	0	0.0	94.0	94.0
SHIPS	00	Z	100	3	0	4.5	12.2	-11.3
SHIPS	12	Z	100	4	0	17.3	43.8	40.3
UQYC	00	Z	100	1	0	0.0	34.0	34.0
V2EZ	00	Z	100	8	0	17.2	17.8	4.9
V2EZ	12	Z	100	8	0	35.3	44.5	27.1
V2GH	00	Z	100	11	0	23.0	23.3	-3.3
V2GH	12	Z	100	14	0	18.8	20.1	-7.4
V2LV	00	Z	100	26	0	15.5	15.5	-0.5
V2LV	12	Z	100	24	0	13.9	15.4	6.6
WTEA	00	Z	100	1	0	0.0	31.0	31.0
ZDLG	00	Z	100	1	0	0.0	34.0	34.0
ZDLG	12	Z	100	9	0	11.2	20.1	16.7
03953	00	Z	100	28	0	11.8	23.8	20.7
03953	12	Z	100	29	0	12.7	17.3	11.7
04018	00	Z	100	29	0	11.2	26.1	23.6
04018	12	Z	100	29	0	15.5	26.0	20.8
04220	00	Z	100	27	0	14.1	22.4	17.3
04220	12	Z	100	29	0	13.9	25.3	21.2
04270	00	Z	100	27	0	11.8	15.7	10.4
04270	12	Z	100	28	0	13.8	19.4	13.6
04339	00	Z	100	26	0	11.4	21.1	17.7
04339	12	Z	100	29	0	11.4	24.3	21.4
04360	00	Z	100	28	0	12.7	18.8	13.9
04360	12	Z	100	28	0	12.4	25.8	22.6
08001	00	Z	100	27	0	18.9	18.9	-0.3
08001	12	Z	100	27	0	16.4	20.1	-11.6
08508	00	Z	100	28	0	10.5	14.3	9.7
08508	12	Z	100	26	1	22.8	23.3	-4.8
08594	00	Z	100	1	0	0.0	16.0	-16.0
08594	12	Z	100	28	0	14.9	15.1	2.4
60020	00	Z	100	28	0	16.7	27.3	21.7
60020	12	Z	100	29	0	16.7	17.5	5.1
71600	00	Z	100	29	0	13.3	15.1	7.2
71600	12	Z	100	29	0	14.2	22.0	16.8
72201	00	Z	100	26	1	19.2	41.5	36.8

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72201	12	Z	100	26	0	22.7	47.3	41.5
72402	00	Z	100	26	0	21.0	51.9	47.5
72402	12	Z	100	25	0	23.6	68.2	64.0
74494	00	Z	100	22	0	17.5	19.5	8.8
74494	12	Z	100	24	0	22.5	61.7	57.5
78016	00	Z	100	1	0	0.0	11.0	-11.0
78016	12	Z	100	24	0	14.0	14.1	1.6

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	25	0	5.7	6.0	1.9
DBBH	12	Z	500	23	0	11.3	11.9	3.7
DBLK	00	Z	500	1	0	0.0	19.0	19.0
DNRS	00	Z	500	1	0	0.0	13.0	13.0
EHOA	00	Z	500	1	0	0.0	18.0	18.0
EHOA	12	Z	500	20	0	10.9	17.9	14.2
FNOR	00	Z	500	13	0	6.0	8.5	6.1
FNOR	12	Z	500	11	0	10.3	10.9	3.5
FNOU	00	Z	500	11	0	4.0	10.0	9.2
FNOU	12	Z	500	9	0	6.6	6.7	0.9
FNPH	00	Z	500	13	0	17.9	19.2	-6.9
FNPH	12	Z	500	14	0	15.8	19.0	-10.6
FNRS	00	Z	500	9	1	14.6	15.4	-4.8
FNRS	12	Z	500	8	0	12.3	12.3	1.0
GACA	00	Z	500	25	0	9.6	13.1	8.8
GACA	12	Z	500	23	0	8.2	8.8	3.2
JBOA	00	Z	500	1	0	0.0	24.0	-24.0
JCCX	00	Z	500	1	0	0.0	10.0	10.0
JDWX	00	Z	500	1	0	0.0	4.0	4.0
JGQH	00	Z	500	1	0	0.0	28.0	-28.0
JIVB	00	Z	500	1	0	0.0	21.0	21.0
LDWR	00	Z	500	28	0	8.6	10.1	5.3
LDWR	12	Z	500	27	0	9.9	10.0	-0.9
NNRS	00	Z	500	1	0	0.0	7.0	-7.0
OXVH2	00	Z	500	9	0	14.5	14.7	-2.3
OXVH2	12	Z	500	8	0	8.2	10.0	-5.8
OXYH2	00	Z	500	16	0	28.3	28.5	2.9
OXYH2	12	Z	500	15	0	17.1	20.0	-10.5
SHIPAF	00	Z	500	1	0	0.0	41.0	41.0
SHIPS	00	Z	500	5	0	7.1	7.8	3.2
SHIPS	12	Z	500	4	0	8.2	9.1	-4.0
UQYC	00	Z	500	1	0	0.0	8.0	8.0
V2EZ	00	Z	500	8	0	13.5	15.0	-6.6
V2EZ	12	Z	500	7	1	6.5	6.6	-0.7
V2GH	00	Z	500	12	0	11.7	12.9	-5.6
V2GH	12	Z	500	18	0	9.8	10.0	-2.1
V2LV	00	Z	500	26	0	8.8	9.1	2.1
V2LV	12	Z	500	27	0	11.6	13.1	6.0
WTEA	00	Z	500	1	0	0.0	1.0	1.0
ZDLG	00	Z	500	1	0	0.0	20.0	20.0
ZDLG	12	Z	500	10	0	8.4	16.8	14.5
03953	00	Z	500	29	0	8.3	15.8	13.5
03953	12	Z	500	29	0	10.1	11.6	5.7
04018	00	Z	500	29	0	10.3	16.0	12.3
04018	12	Z	500	29	0	8.3	9.7	4.9
04220	00	Z	500	28	0	14.9	15.4	-4.1
04220	12	Z	500	29	0	15.3	16.1	-5.1
04270	00	Z	500	28	0	13.0	13.0	-0.2
04270	12	Z	500	29	0	16.6	17.2	-4.2
04339	00	Z	500	27	0	10.3	10.5	-2.3
04339	12	Z	500	29	0	12.1	13.7	-6.6
04360	00	Z	500	28	0	11.6	11.6	0.1
04360	12	Z	500	28	0	12.4	13.9	-6.2
08001	00	Z	500	28	0	14.3	14.8	3.7
08001	12	Z	500	28	0	14.2	16.4	-8.2
08508	00	Z	500	28	0	16.3	16.7	3.5
08508	12	Z	500	27	0	22.7	23.1	-4.1
08594	00	Z	500	1	0	0.0	14.0	14.0
08594	12	Z	500	28	0	6.4	6.8	-2.3
60020	00	Z	500	28	0	12.4	15.8	9.8
60020	12	Z	500	29	0	9.6	10.2	3.6

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
71600	00	Z	500	29	0	10.4	11.0	3.6
71600	12	Z	500	29	0	6.9	7.5	2.8
72201	00	Z	500	28	0	12.8	17.9	12.5
72201	12	Z	500	27	0	9.1	12.1	8.0
72402	00	Z	500	28	0	8.8	17.2	14.8
72402	12	Z	500	27	0	11.8	14.8	9.0
74494	00	Z	500	26	0	7.3	7.5	1.8
74494	12	Z	500	27	0	11.7	12.6	4.5
78016	00	Z	500	1	0	0.0	3.0	-3.0
78016	12	Z	500	24	0	7.0	7.3	1.9

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	25	0	0	0.0	-0.8	-1.5
DBBH	12	V	100	21	0	0	2.9	-0.4	0.0
EHOA	00	V	100	1	0	0	1.7	-1.9	0.8
EHOA	12	V	100	19	0	0	1.7	-3.1	-0.5
FNOR	00	V	100	13	0	0	5.1	-0.1	-0.6
FNOR	12	V	100	11	0	0	2.0	-1.7	1.3
FNOU	00	V	100	11	0	0	2.3	-1.0	0.3
FNOU	12	V	100	10	0	0	1.9	-1.2	-0.1
FNPH	00	V	100	10	0	0	2.1	-1.1	-0.7
FNPH	12	V	100	12	0	0	2.0	-1.5	0.8
FNRS	00	V	100	9	0	0	2.4	-0.5	-1.5
FNRS	12	V	100	6	0	0	2.4	-8.3	0.3
GACA	00	V	100	25	0	0	2.4	0.2	0.3
GACA	12	V	100	23	0	0	2.1	-0.4	0.0
JBOA	00	V	100	1	0	0	1.8	0.7	-1.8
JCCX	00	V	100	1	0	0	3.2	-2.3	-1.3
JDWX	00	V	100	1	0	0	3.2	2.6	-1.6
JGQH	00	V	100	1	0	0	3.2	-0.1	-1.9
JIVB	00	V	100	1	0	0	3.2	0.0	4.1
LDWR	00	V	100	28	0	0	3.2	0.1	0.2
LDWR	12	V	100	25	0	0	1.3	0.3	0.3
OXVH2	00	V	100	9	0	0	1.5	-0.7	1.5
OXVH2	12	V	100	7	0	0	1.5	0.0	1.5
OXYH2	00	V	100	15	0	0	1.5	-1.1	0.8
OXYH2	12	V	100	15	0	0	2.1	-0.6	0.4
SHIPAF	00	V	100	1	0	0	1.7	1.5	-1.2
SHIPS	00	V	100	1	0	0	1.7	0.4	-0.9
UQYC	00	V	100	1	0	0	1.7	3.7	3.4
V2EZ	00	V	100	8	0	0	1.7	-1.0	-1.8
V2EZ	12	V	100	8	0	12	1.7	0.1	0.1
V2GH	00	V	100	10	0	0	1.7	-1.4	0.5
V2GH	12	V	100	15	0	0	3.3	-0.4	-1.1
V2LV	00	V	100	26	0	0	2.3	-0.4	0.1
V2LV	12	V	100	23	0	0	4.0	0.0	0.9
WTEA	00	V	100	1	0	0	3.9	-0.5	1.0
ZDLG	00	V	100	1	0	0	3.9	4.3	2.6
ZDLG	12	V	100	10	0	0	3.9	0.2	1.8
03953	00	V	100	28	0	0	2.5	-0.5	0.2
03953	12	V	100	29	0	0	1.8	-1.1	0.4
04018	00	V	100	27	0	0	1.8	-0.6	0.1
04018	12	V	100	28	0	0	1.6	-0.8	0.6
04220	00	V	100	27	0	0	1.5	-0.2	1.0
04220	12	V	100	29	0	0	1.9	0.8	0.3
04270	00	V	100	26	0	0	1.8	-1.1	0.9
04270	12	V	100	28	0	0	1.8	-1.0	0.7
04339	00	V	100	26	0	0	1.8	0.8	0.1
04339	12	V	100	29	0	0	1.9	0.0	1.1
04360	00	V	100	28	0	0	1.8	-0.7	0.9
04360	12	V	100	28	0	0	2.2	-0.5	0.4
08001	00	V	100	26	0	0	3.1	0.4	-0.1
08001	12	V	100	27	0	0	2.8	-1.4	0.5
08508	00	V	100	28	0	0	3.3	0.7	0.8
08508	12	V	100	27	0	0	2.8	-0.6	-0.1
08594	00	V	100	1	0	0	2.5	8.4	-4.3
08594	12	V	100	27	0	0	2.5	1.3	4.1
60020	00	V	100	28	0	0	2.5	0.4	0.9
60020	12	V	100	29	0	0	3.7	-0.2	0.7
71600	00	V	100	29	0	0	2.8	0.1	-0.1
71600	12	V	100	29	0	0	2.8	0.8	-0.7
72201	00	V	100	25	0	0	2.2	0.7	-0.3
72201	12	V	100	24	0	0	3.7	-1.5	-1.9

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72402	00	V	100	23	1	4	3.2	9.5	-1.2
72402	12	V	100	24	0	0	3.8	-1.1	0.1
74494	00	V	100	22	0	0	4.1	-1.2	0.9
74494	12	V	100	24	0	0	3.4	-0.6	0.4
78016	00	V	100	1	0	0	5.0	8.7	-5.7
78016	12	V	100	23	0	0	5.0	0.3	-1.2

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: May, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	25	0	0	0.0	-1.7	-1.0
DBBH	12	V	500	23	0	0	2.6	-0.9	-2.0
DBLK	00	V	500	1	0	0	2.5	-0.6	-1.1
DNRS	00	V	500	1	0	0	6.2	2.2	-0.9
EHOA	00	V	500	1	0	0	6.2	-0.6	-6.8
EHOA	12	V	500	20	0	0	6.2	-0.1	0.2
FNOR	00	V	500	13	0	0	4.0	-0.4	0.3
FNOR	12	V	500	11	0	0	2.3	-0.8	-0.8
FNOU	00	V	500	10	0	0	2.2	-1.3	0.7
FNOU	12	V	500	10	0	0	3.4	-0.6	-0.1
FNPH	00	V	500	12	0	0	1.9	-0.2	-0.4
FNPH	12	V	500	13	0	0	4.1	-0.4	0.3
FNRS	00	V	500	10	0	0	3.5	-0.7	0.4
FNRS	12	V	500	8	0	0	3.0	-5.1	0.0
GACA	00	V	500	25	0	0	3.0	0.4	0.0
GACA	12	V	500	23	0	0	3.0	0.7	0.7
JBOA	00	V	500	1	0	0	4.2	0.0	-1.2
JCCX	00	V	500	1	0	0	3.0	-0.3	-0.2
JDWX	00	V	500	1	0	0	3.0	-3.0	2.2
JGQH	00	V	500	1	0	0	3.0	-1.1	1.4
JIVB	00	V	500	1	0	0	3.0	-0.6	-2.9
LDWR	00	V	500	28	0	0	3.0	0.8	0.5
LDWR	12	V	500	23	0	0	2.0	0.3	0.3
NNRS	00	V	500	1	0	0	2.7	0.4	-1.8
OXVH2	00	V	500	9	0	0	2.7	-0.6	1.3
OXVH2	12	V	500	8	0	0	2.7	1.6	-0.4
OXYH2	00	V	500	16	0	0	2.7	0.6	1.1
OXYH2	12	V	500	15	0	0	3.3	-0.2	0.1
SHIPAF	00	V	500	1	0	0	2.9	4.4	-3.1
SHIPS	00	V	500	3	0	0	2.9	4.7	-1.5
SHIPS	12	V	500	3	0	0	2.9	0.3	2.5
UQYC	00	V	500	1	0	0	2.9	1.4	-0.8
V2EZ	00	V	500	8	0	0	2.9	1.0	0.3
V2EZ	12	V	500	8	0	12	2.9	0.1	-0.6
V2GH	00	V	500	12	0	0	2.9	-0.9	-0.2
V2GH	12	V	500	18	0	0	2.9	-0.6	0.2
V2LV	00	V	500	26	0	0	2.1	0.1	-0.6
V2LV	12	V	500	26	0	0	1.9	0.3	-0.6
WTEA	00	V	500	1	0	0	3.0	0.5	0.5
ZDLG	00	V	500	1	0	0	3.0	-1.0	-5.6
ZDLG	12	V	500	10	0	0	3.0	-0.8	-0.8
03953	00	V	500	29	0	0	2.9	0.4	-0.8
03953	12	V	500	29	0	0	3.4	0.2	0.2
04018	00	V	500	29	0	0	3.2	1.0	-0.5
04018	12	V	500	28	0	0	2.7	0.4	0.1
04220	00	V	500	28	0	0	3.6	-0.2	2.0
04220	12	V	500	29	0	0	3.3	-0.7	-0.1
04270	00	V	500	28	0	0	4.1	0.4	0.5
04270	12	V	500	29	0	0	5.0	1.4	-0.5
04339	00	V	500	27	0	0	2.7	0.9	0.8
04339	12	V	500	29	0	0	4.0	1.5	1.2
04360	00	V	500	28	0	0	3.4	0.4	0.8
04360	12	V	500	28	0	0	3.6	-0.7	0.1
08001	00	V	500	28	0	0	4.8	0.0	-0.9
08001	12	V	500	28	0	0	2.6	-0.2	0.7
08508	00	V	500	28	0	0	3.7	0.6	0.3
08508	12	V	500	27	0	0	3.4	-0.6	-0.6
08594	00	V	500	1	0	0	2.6	0.4	-6.0
08594	12	V	500	25	0	0	2.6	-1.5	0.8
60020	00	V	500	28	0	0	2.5	-0.2	-0.7
60020	12	V	500	29	0	0	4.6	-0.2	-0.6

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
71600	00	V	500	29	0	0	4.5	0.0	-1.0
71600	12	V	500	29	0	0	3.0	1.1	1.5
72201	00	V	500	28	0	0	4.2	-0.2	0.1
72201	12	V	500	27	0	0	2.3	-0.7	-0.3
72402	00	V	500	24	0	0	3.7	0.5	1.5
72402	12	V	500	26	0	0	2.6	-0.1	1.3
74494	00	V	500	26	0	0	4.2	0.3	0.7
74494	12	V	500	27	0	0	3.4	-0.9	1.8
78016	00	V	500	1	0	0	3.6	-0.6	2.4
78016	12	V	500	23	0	0	3.6	-0.1	0.2

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45